

8mm VIDEO CAMCORDER

Instruction Manual

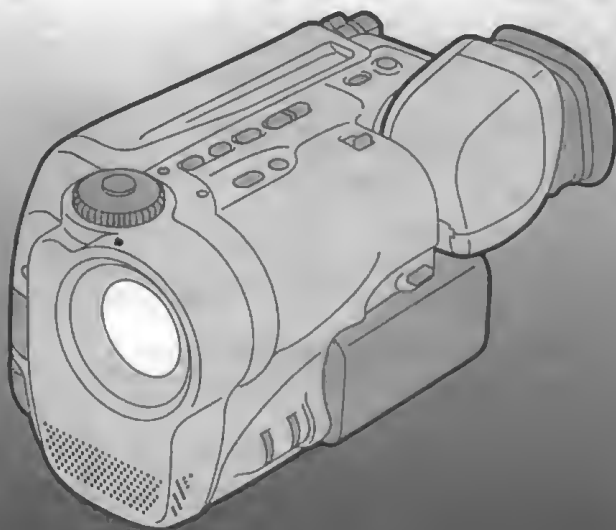
Introduction

Basic
Operation

Advanced
Functions

Editing

Additional
Information



Canon

Hi8

UC-X40^{Hi}*/UC-X45^{Hi}

P (PAL)

* Available only in certain areas.

Important Usage Instructions

E**2**

Introduction

CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK AND TO REDUCE ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

CAUTION:

CUSTOMERS IN THE U.K. SHOULD READ THIS BEFORE USING THIS PRODUCT.

CHANGING THE FUSE

THE MAINS LEAD ON THIS PRODUCT IS FITTED WITH A NON-REWIREABLE (MOULDED) PLUG, INCORPORATING A 3 AMP FUSE. SHOULD THE FUSE NEED TO BE REPLACED AN ASTA OR BS/ APPROVED BS1632 FUSE OF THE SAME RATING MUST BE USED.

ALWAYS REFIT THE FUSE COVER AFTER REPLACING THE FUSE. NEVER USE THE PLUG WITH THE FUSE COVER OMITTED.

CHANGING THE PLUG

IF THE FITTED PLUG IS NOT SUITABLE FOR YOUR SOCKET OUTLETS, IT SHOULD BE CUT OFF AND AN APPROPRIATE PLUG FITTED IN ITS PLACE. IF POSSIBLE FIT AN APPROPRIATE 3 AMP FUSE. IF THE NEW PLUG HAS NO FUSE, THEN FIT A 5 AMP FUSE AT THE DISTRIBUTION BOARD.

AC POWER CORD CONNECTION (CA-900B only)

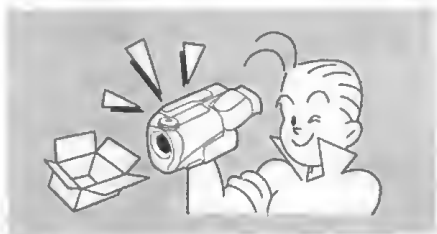
The wires in the mains lead of this apparatus are coloured in accordance with the following cord.

(IMPORTANT)



As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows: The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red. Neither Blue wire or Brown wire is to be connected to the Earth pin of a 3 pin plug.

THE SEVERED PLUG MUST BE DESTROYED IMMEDIATELY TO AVOID ANY POSSIBLE ELECTRIC SHOCK HAZARD.



First, we'd like to thank you for purchasing this Canon camcorder. Its advanced technology makes it very easy to use — you will soon be making high-quality videos which will give you pleasure for years to come.

To get the most out of your new camcorder, you should read this manual thoroughly — there are many sophisticated features which will add to your recording enjoyment.

Getting started

To get started, you will need to read these sections:

“Basic Recording”

“Power Sources”

“Cassettes”

“Preparing the Camera”

Then you can go on to find out about the more advanced features.

Using this manual

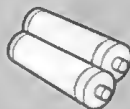
As well as using the table of contents and the alphabetical index, you can look up the different parts and functions in the sections called “Nomenclature” and “Viewfinder Displays.” There's also a “Troubleshooting” section in case you run into any problems.

Check that this package contains the following accessories:

WL-65 Wireless Controller



Two AA batteries



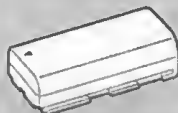
SS-200 Shoulder Strap



Lens cap and lens cap cord



BP-911 Battery Pack



CA-900 Compact Power Adapter



Lithium button battery



DC-900 DC Coupler



S-150 S-video Cable



STV-150 Stereo Video Cable



PC-A10 SCART-Adapter (Europe, Asia)



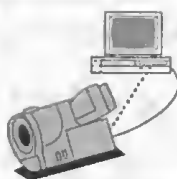
Introducing the UC-X40Hi/UC-X45Hi

E

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Introduction

Auto Editing Function



A complete set of editing functions is built-in, with RC Time Code for accurate frame-by-frame editing.

Hi8



Hi8 is the format that most video professionals rely on for high quality, long recording times and compact size.

FlexiZone Control



Easier than manual operation and more flexible than automatic functions, Canon's FlexiZone Control is a completely new way to use a video camera.

Colour viewfinder (UC-X45Hi)



The ability to see your subject in living colour as you shoot makes it easier to compose each scene for maximum impact.

Optical Image Stabilizer



Optical technology stabilizes your recordings even at the furthest reaches of the zoom range.

Digital effects and faders



Advanced digital technology allows you to add special effects and varied scene transitions to your recordings.

22X lens and 44X digital zoom



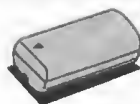
From wide-angle to world-beating 22x telephoto — with unparalleled optical quality. The digital zoom doubles this magnification for even more dramatic results.

Hi-fi stereo sound



The compact integral microphone offers the depth and realism of AFM in full dynamic stereo.

Lithium ion power supply



The UC-X40Hi/UC-X45Hi features the latest in portable power technology.

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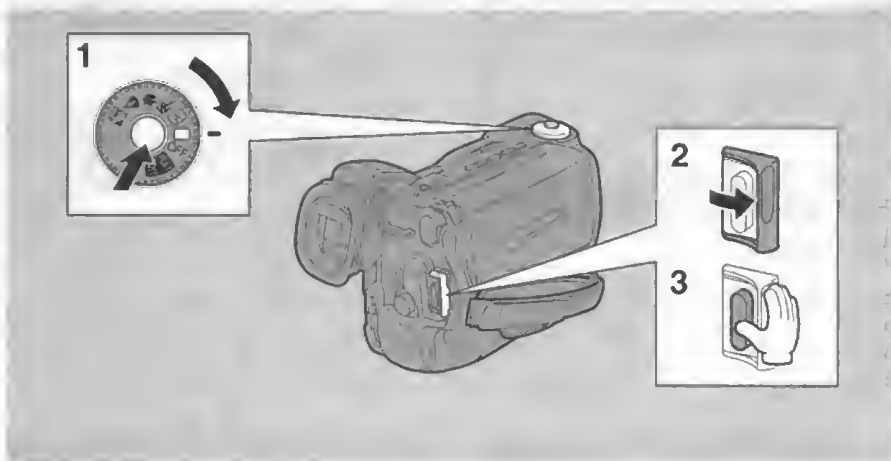
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Before you start recording

Complete the following steps:

- Attach a power source (p. 8).
- Load a cassette (p. 12).
- Adjust the viewfinder, fasten the grip belt and take off the lens cap (p. 13).

You may also want to install the backup battery (p. 11) in order to set the date and time display (p. 24).

To record

1. Turn the program selector to the ☐ position.

- This selects the camera's Easy Recording program. It allows you to simply point and shoot without making any manual adjustments (see p.29).

2. Open the STANDBY cover.

- The operation indicator lights up and PAUSE appears in the viewfinder — the camera is now in "record pause mode."
- The camera will turn itself off if you leave it in record pause mode for more than about five minutes. To return to record pause mode, close and reopen the STANDBY cover, or set the program selector to OFF and then back to CAMERA.

3. Press the start/stop button to begin recording.

- The tally lamp flashes rapidly and REC appears in the viewfinder.

Notes:

- To check that the camera is recording correctly, be sure to make a test recording first.
- Before making important recordings, clean the video heads using a Canon CC-8 Video Head Cleaning Cassette or a commercially available dry-type head cleaning cassette.

4. Press the start/stop button again to pause recording.

- The camera returns to record pause mode and PAUSE reappears in the viewfinder.
- You can stop and restart recording as often as you like by pressing the start/stop button.

5. Close the STANDBY cover.

- As long as the program selector is set to one of the camera's six recording programs, you can use the STANDBY cover to turn the camera on and off. This makes it easy to save battery power, and prevents accidental operation of the start/stop button.

When you have finished recording

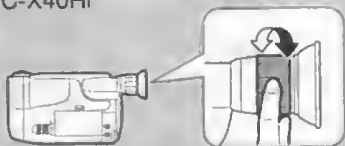
- Replace the lens cap.
- Unload the cassette.
- Set the program selector to OFF.
- Disconnect the power source.

Note:

- If you turn the camera off using the STANDBY cover, it will remember your chosen focus and shutter speed settings (and whether or not a title, the date and time were displayed). If you turn it off using the program selector, these settings are erased from the memory.

Adjust the Viewfinder

UC-X40Hi



UC-X45Hi



- You can adjust the viewfinder to suit your eyesight. With the camera in record pause mode, turn the viewfinder focusing ring (UC-X40Hi) or wheel (UC-X45Hi) until the viewfinder displays are clearly focused.
- The viewfinder rotates through 90° to give a choice of shooting positions.

Before operating your camera, you will need to use the power adapter to:

- provide power from a mains outlet**
- or
- charge a battery pack**

Notes:

- The power adapter converts current from a household power outlet (100–240 V AC, 50/60 Hz) to the DC current used by your camera.
- If the adapter is used next to a TV, it may cause the TV to emit noise — move the adapter away from the TV or the antenna cable.

Connecting the camera to a mains outlet

Use the power adapter and the DC coupler to provide your camera with instant power from a mains outlet.

1. Attach the DC coupler to the camera.

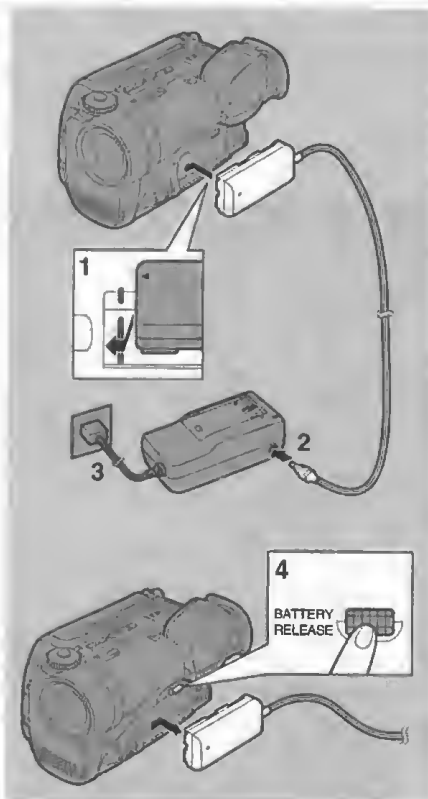
- Align the triangle on the DC coupler with the line on the camera.

2. Connect the DC coupler to the adapter.

3. Plug the adapter into a mains outlet.

4. Detach the DC coupler after use.

- Press and hold the BATTERY RELEASE button.
- Always turn the camera off before removing the power source.



Charging and attaching the battery pack

Your battery pack was partially charged before it left the factory. It should have enough power for you to check that your camera is working properly. However, you must charge the battery pack fully if you want it to power the camera for more than a few minutes.

1. Attach the battery pack to the power adapter.

- Align the triangle on the battery pack with the line on the camera.
- Make sure the DC coupler is not connected.

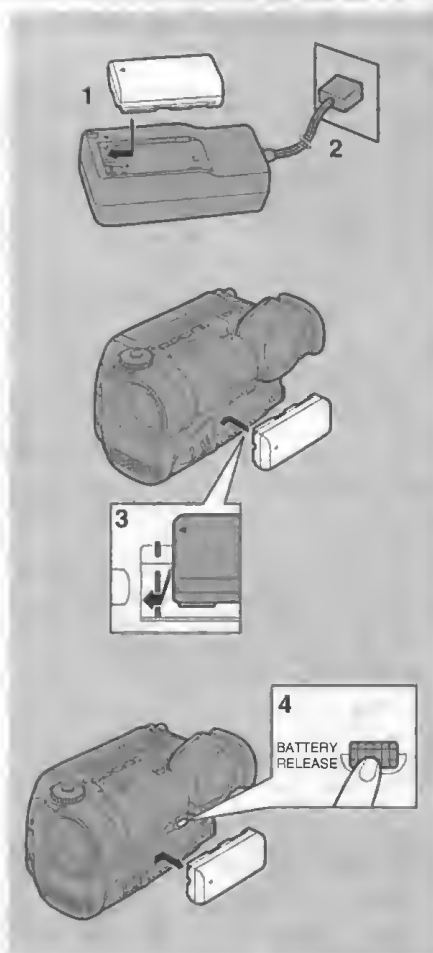
2. Plug the adapter into a mains outlet.

- The charge indicator flashes red to show that charging is in progress. Single flashes mean that the battery pack is less than 50% charged. Double flashes mean that it is between 50% and 75% charged. Triple flashes mean that it is more than 75% charged.
- The indicator glows steadily when the battery pack is fully charged.

3. Take the battery pack off the adapter and attach it to the camera.

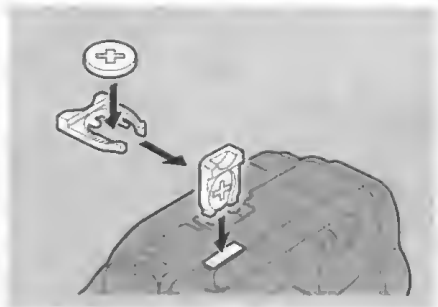
4. Detach the battery pack after use.

- Press and hold the BATTERY RELEASE button.
- Always turn the camera off before removing the power source.



- If you do not use the battery packs for a long period of time (well in excess of 6 months), any remaining charge may cause damage to the pack and reduce usage time. To prevent damage, therefore, discharge battery packs completely before storage.


Installing the backup battery



Pull out the battery holder from the base of the camera, and insert the CR2025 lithium battery with the + side facing upwards. Click the holder back into place.

- You may find it useful to use a small screwdriver to ease out the battery holder.

This backup battery allows the camera to remember the date and time and other settings when the main power source is removed. It has a life span of about a year.

When it needs replacing (or if it has not been installed), the  mark flashes in the viewfinder. Remove the old battery by pushing it down and pulling it out. Make sure to attach a power source to the camera first, and turn it off using the **STANDBY** cover. This way it will remember your chosen settings when you change the battery.

DANGER!

Treat the battery pack with care.

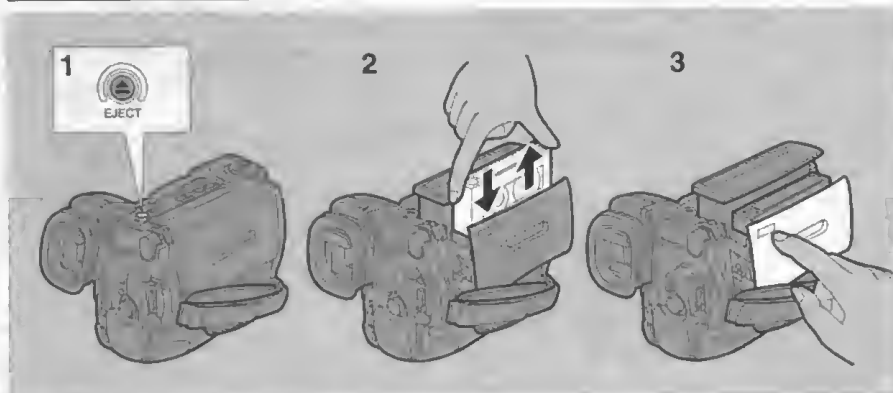
- Keep it away from fire (or it might explode).
- Do not expose the battery pack to temperatures greater than 140°F (60°C). Do not leave it near a heater, or inside a car in hot weather, for example.
- Do not try to disassemble or modify it.
- Do not drop or knock it.
- Do not get it wet.

WARNING!

- The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 212°F (100°C) or incinerate.
- Replace the battery with a Sony, Sanyo or Panasonic CR2025, or Duracell DL2025. Use of another battery may present a risk of fire or explosion.
- The used battery should be handed back to the supplier for safe disposal.


Cautions:

- Do not pick up the battery using tweezers or other metal tools — this will cause a short circuit.
- Wipe the battery with a clean, dry cloth to ensure proper contact.
- Keep the battery out of reach of children - if it is swallowed, contact a physician immediately, as the battery case may break down and the battery fluids damage the stomach and intestines.
- Do not disassemble, heat, or immerse the battery in water, to avoid the risk of explosion.



Use video cassettes marked with a **Hi8** or **8**.

Loading and unloading

1. Press the EJECT  button and wait for the cassette compartment to open.

2. Load or unload the cassette.

- Insert the cassette gently with the window facing out.
- Remove the cassette by pulling it straight out.

3. Press the **PUSH mark on the compartment until it clicks, and wait for it to close.**

4. Click the cover back into place.

Notes:

- See p. 27 for information on protecting your recordings from accidental erasure.
- After loading a cassette, use record search (p. 28) to find the point where you want to start recording.
- Do not interfere with the cassette compartment while it is opening or closing automatically.
- Do not leave the cassette in the camera after use — return it to its case and store it in a cool, clean, dry place.
- The holes in the back of the cassette are used for transferring information — do not cover them.

Preparing the Camera

E

You should already have attached a power source to the camera and loaded a cassette. When you have completed the following steps, you will be ready to start recording.

Prepare the lens cap

- Attach the cord to the lens cap, and pass the grip belt through the loop on the cord.
- Hook the lens cap on to the grip belt while you are recording, and place it over the lens when you have finished.

Fasten the grip belt

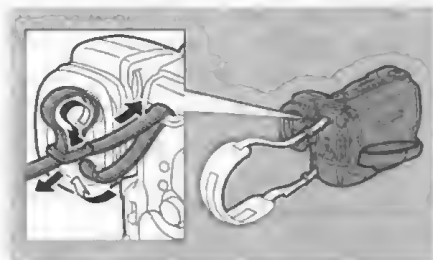
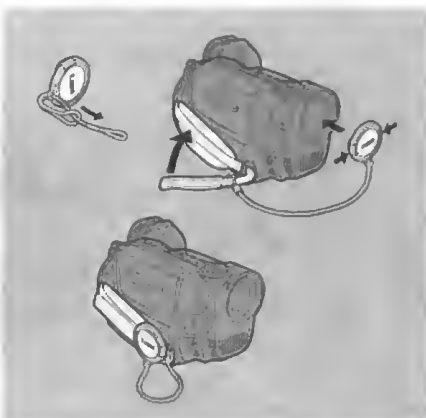
- Release the Velcro fastening and hold the camera with your right hand while you adjust the belt with your left.

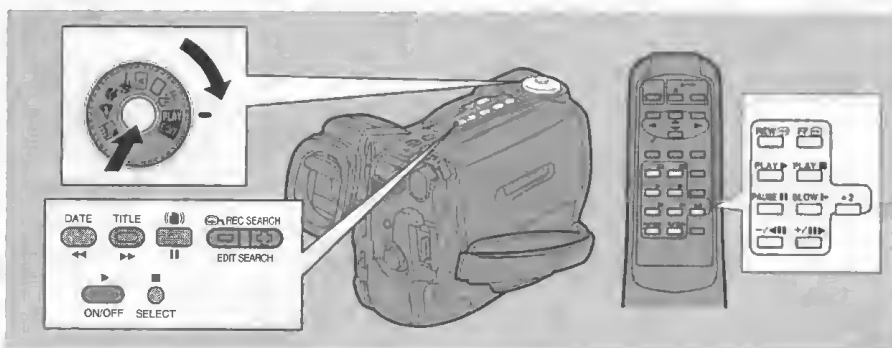
Attach the shoulder strap

- For extra security and portability, attach the shoulder strap before using the camera.
- Pass the ends through the attachment bars and adjust the length as shown.

Note:

- Be careful not to leave the viewfinder exposed to bright sunlight, or it will melt. (The light is concentrated by the viewfinder lens.) You may be able to move the viewfinder out of direct sunlight by pushing it upright, or by moving it back down to horizontal.





You can use the viewfinder screen for instant, on-the-spot playback.

To play back your recordings on a TV, see p. 17. To use the wireless controller, see p. 23.

Note:

- To avoid accidental recording, make sure that you slide the red switch on the cassette so that it covers the hole (the switch position is usually labelled **SAVE** or **ERASE OFF**).

1. Attach a power source and set the program selector to **PLAY**.

- The operation indicator lights up.

2. Load the cassette.

3. Press the **PLAY** button to start playback.

- To end playback, press the **STOP** button.
- To wind the tape forwards, stop playback and press the **FF** button.
- To wind the tape backwards, stop playback and press the **REW** button.
- If the playback picture is rough, clean the video heads using a Canon CC-8 Video Head Cleaning Cassette or a commercially available dry-type head cleaning cassette.

Special playback

Still playback

Press the **PAUSE** button. To resume normal playback, press it again, or press the **PLAY** button. The camera automatically goes into stop mode after about five minutes' still playback.

Edit Search

When the camera is in still play back mode, you can use edit search to play the tape forwards or backwards to find the point where you want to start or restart editing. This is useful when you want to find cut-in and cut-out points in edit mode.

Press and hold the **EDIT SEARCH** + and - button during playback, while you check the picture in the viewfinder.

- The + button plays the recording forwards and the - button plays it backwards.

Release the button when you find the point where you want to start editing.

- The camera returns to still playback mode.

Fast forward playback

To play back the recording at about 7 times normal speed, press and hold the **FF** button during normal playback or press and hold the **FF** button during normal fast forward.

Rewind playback

For reverse playback at about 5 times normal speed, press and hold the REW ◀◀ button during normal playback or press and hold the REW ◀◀ button during normal rewind.

Frame Advance

To play back frame by frame, press the +/▶▶ button repeatedly during still playback.

Press and hold to playback continuous frame advance.

Frame Reverse

To playback on reverse frame by frame, press the -/◀◀ button repeatedly during still playback.

Press and hold to play back continuous frame reverse.

Slow Forward Playback

To play back at about 1/5 normal speed, press the SLOW |▶ button during normal playback.

Press the PLAY ▶ button return to normal playback.

- The camera automatically returns to playback after about 30 seconds of slow playback.

Slow Reverse Playback

To play back in reverse at about 1/5 normal speed, press the -/◀◀ button and then the SLOW |▶ button during normal playback. Press PLAY ▶ to return to normal playback.

- The camera automatically returns to reverse X1 playback after about 30 second of slow playback.

Reverse Playback

To play back in reverse at normal speed, press the -/◀◀ button during normal forward playback. Press the PLAY ▶ button to return to normal forward playback.

Forward X2 Playback

Press the +/▶▶ button and then the X2 button during normal playback.

Press the PLAY ▶ button to return to normal playback.

Reverse X2 Playback

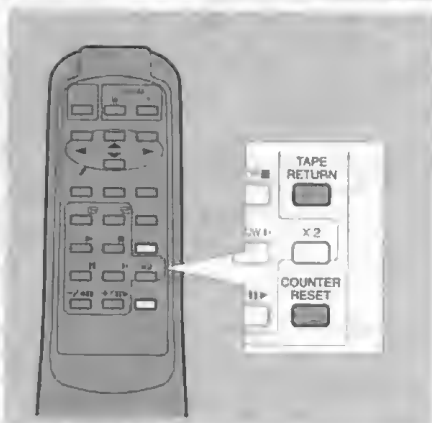
Press the -/◀◀ button and then the X2 button during normal playback.

Press the PLAY ▶ button to return to normal playback.

Notes:

- Noise bars appear on the screen during special playback and the sound track cannot be heard. On certain TVs the picture may roll and divide, or appear in black and white, and the high-speed search picture may not be visible.
- During still playback, the picture flickers, and fast action scenes may appear blurred.
- The special playback functions are especially useful when used with the Auto Editing Function. (See pp.45-55)

Tape return



Use the wireless controller's TAPE RETURN button to quickly return to a scene you want to see again. You can only operate this from the wireless controller.

Notes:

- To use type return, be sure to select COUNTER from the playback menu (see p. 22).
- You are not able to use the tape return function while using time code.

1. Press the COUNTER RESET button during playback if you come across a scene you want to watch again later.

- The tape counter is reset to 0:00:00.

2. When you have ended playback, press the TAPE RETURN button.

- The tape rewinds and stops when the counter nears 0:00:00.
- You can cancel tape return by pressing the STOP ■ button.

3. Start playback.

About Hi8

To record or play back in the Hi8 format, you need both a Hi8 camcorder and a Hi8 cassette (you can use either Metal-P or Metal-E Hi8 cassettes).

A Hi8 camcorder can record or play back in either the Hi8 format or standard 8mm format, depending on the tape used.

The superior quality of Hi8 can best be appreciated on a TV which has an S-video input terminal.

Note:

- The tape counter is reset when a cassette is loaded.

Playback Connection

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You can connect the camera to a TV or VCR in order to play back your recordings. You will need to attach a power source to the camera (see p. 8).

See your TV/VCR instruction manual for details.

Notes:

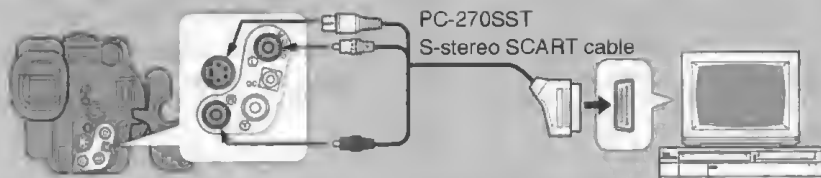
- If you are going to use the TV as a monitor while you are shooting, remember to keep the TV volume turned down as long as the

camera's AUDIO terminals are connected. If the sound from the TV speakers is picked up by the microphone, an unpleasant high-pitched squeal, called feedback, may be produced.

- If you want a mono output, connect the cable to the camera's left AUDIO terminal ①, but do not connect the right AUDIO terminal ②. This will give a combined mono output from both left and right channels.
- The superior quality of Hi8 can best be appreciated on a TV which has S-video input.

17**Basic Operation**

If your TV (or VCR) has a SCART terminal (S-video)



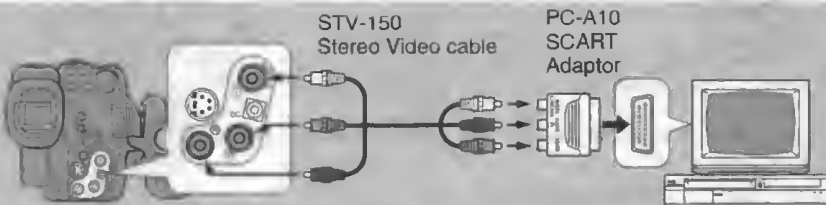
1. Connect the camera to the TV (or VCR).

- Connect the camera using the optional PC-270SST S-stereo SCART Cable. Connect the white plug to the white audio terminal ① (left). Connect the red plug to the red audio terminal ② (right). Connect the S-video plug to the S-video terminal ③.

2. Set the TV/VIDEO selector on the television to VIDEO.

3. If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.

If your TV (or VCR) has a SCART terminal (without S-video)



1. Connect the PC-A10 SCART adaptor to the TV or VCR's SCART terminal.

2. Connect the camera to the adaptor.

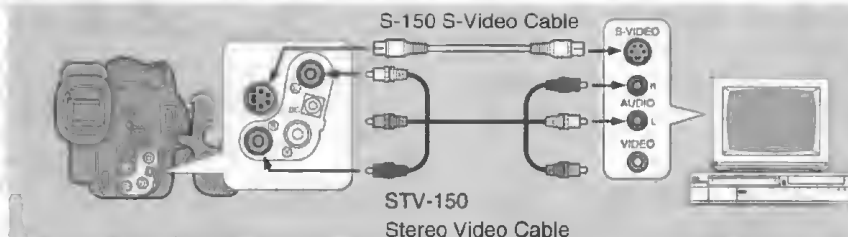
- Connect the camera using the STV-150 Stereo Video Cable. Connect the white plug to the white audio terminal ① (left). Connect the red plug to the red audio

terminal ② (right). Connect the yellow plug to the yellow video terminal ③.

3. Set the TV/VIDEO selector on the television to VIDEO.

4. If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.

If your TV (or VCR) has an S-video input terminals



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Basic Operation

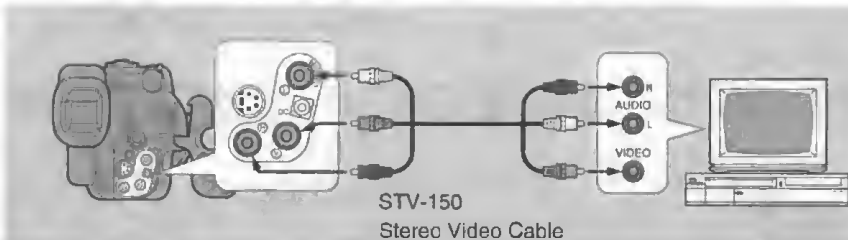
1. Connect the camera to the TV (or VCR).

- Use the S-150 S-Video Cable to connect the S-video terminal (S).
- Use a stereo cable or the STV-150 Stereo Video Cable, to connect the AUDIO terminals. Connect the white plug to the white AUDIO terminal (L) (left). Connect the red plug to the red AUDIO terminal (R) (right). Do not connect the yellow plug if you are using the STV-150 Stereo Video Cable.

2. Set the TV/VIDEO selector on the television to VIDEO.

3. If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.

If your TV (or VCR) has audio/video input terminals



1. Connect the camera to the TV (or VCR).

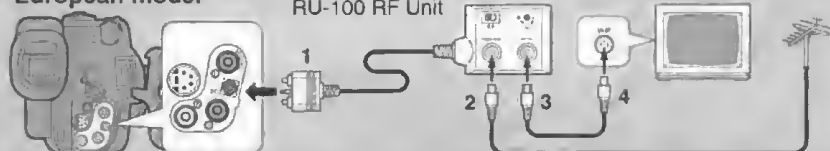
- Use the STV-150 Stereo Video Cable. Connect the white plug to the white AUDIO terminal (L) (left). Connect the red plug to the red AUDIO terminal (R) (right). Connect the yellow plug to the yellow VIDEO terminal (V).

2. Set the TV/VIDEO selector on the television to VIDEO.

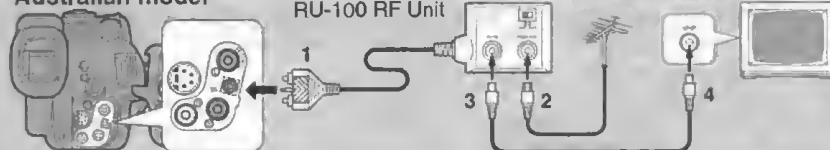
3. If you are connecting the camera to a VCR, set the input selector on the VCR to LINE.

If your TV does not have audio/video input terminals

European model



Australian model



If your TV is already hooked up to a VCR, you can connect the camera to the VCR instead of the TV. Follow the instructions on p. 14 or 15.

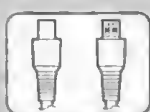
To connect the camera directly to a TV which does not have audio/video terminals, you will need to use the optional RU-100 RF Unit. The soundtrack will be in mono. There are two different models, one for Australia, and one for Europe and other areas.

Connecting the RF unit



Coaxial cable with DIN-connectors

Male Female

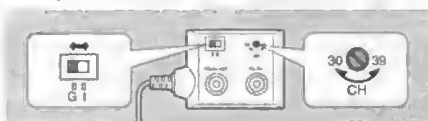


1. Connect the RF unit to the camera.
2. Connect the aerial cable to the FROM ANT. terminal on the RF unit.
3. Connect the "female" DIN-connector on the coaxial cable to the TO TV terminal on the RF unit.
4. Connect the "male" connector to the aerial input on the TV.
5. Turn the TV on, and start playback on the camera.
 - See p. 14 for playback.
6. Set both the TV and the RF unit to the video channel.

Selecting the video channel

The video channel is the channel which is not used by a broadcasting station in your area and can be used for cassette playback.

European model

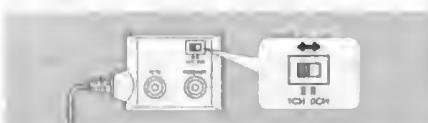


First set the G/I selector on the RF unit.

- In continental Europe, set it to G.
 - In the UK, Hong Kong and South Africa, set it to I.
- If it is not set properly, you will be able to see the picture, but not hear the sound.

Next, set the TV and the CH selector on the RF unit to the video channel. The selector is factory-set to channel 32. Adjust it by turning until the picture is clear.

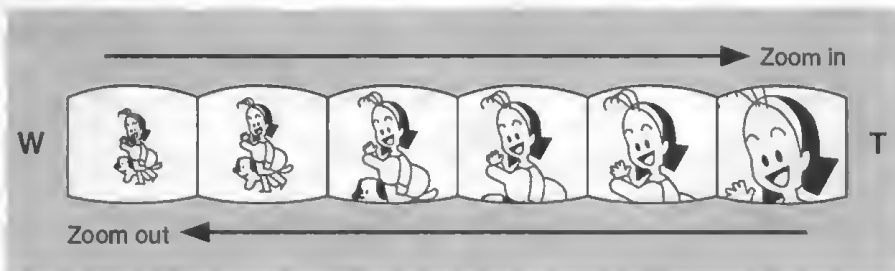
Australian model



Set the TV and the RF unit to channel 0 or 1.

Note:

- Turn the camera off or disconnect it from the RF unit when you want to watch a broadcast programme. If you leave the camera connected and turned on, the RF unit will automatically select the camera signal instead of the broadcast signal.



22X optical zoom



The camera's 22x zoom lens allows you to choose the best picture angle for each scene:

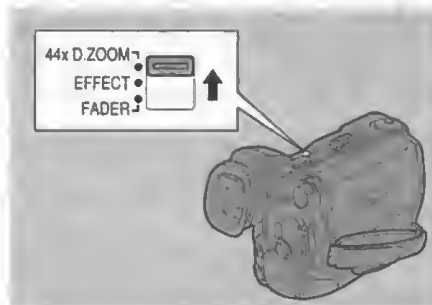
- Turn the zoom control towards W to zoom out to wide-angle.
- Turn it towards T to zoom in to telephoto.

You can also control the speed of zooming:

- Move the control slightly to zoom slowly.
- Turn it further to zoom more quickly. (The further you turn the zoom control, the faster the zoom speed.)

The T and W buttons on the wireless controller adjust the picture angle, but not the zoom speed.

44X digital zoom



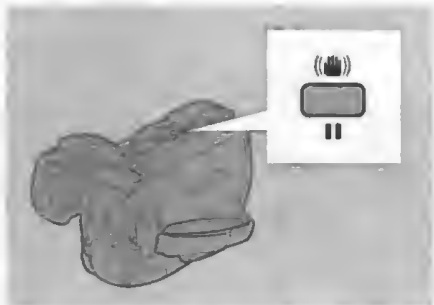
Slide the digital effects slide switch to the 44x D. ZOOM position to double the camera's zoom range.

The zoom control continues to work as usual, but if you keep zooming beyond 22x magnification (the limit of the optical zoom), the camera will begin to enlarge the image electronically. You can freely zoom in and out between 1x and 44x magnification — the camera automatically switches between optical zooming (up to 22x) and digital zooming (22 to 44x).


Notes:



- When you want to get as close as possible to your subject, keep the zoom at the wide-angle position. You can focus on a subject as close as 1 cm (3/8 in).
- Image resolution is slightly lower when the magnification is greater than 22x.

Optical Image Stabilizer



With most camcorders, even the slightest hand movements will be noticeable during telephoto recording. However, the UC-X40Hi/UC-X45Hi's Optical Image Stabilizer allows you to obtain steady recordings even at 22x or 44x magnification. Unlike electronic image stabilizers, it causes no loss of picture quality. The Optical Image Stabilizer can compensate for a wide range of camera movement — you can record stable images even if you are shooting from a moving car.

Before you start recording push the  ON/OFF button to turn the image stabilizer on or off.

- The  mark appears in the viewfinder when the stabilizer is on.
- The image stabilizer cannot be turned off when the program selector is set to the  (Easy Recording) position.

Notes:

- The image stabilizer is designed to deal with a normal degree of camera shake.
- Keep the image stabilizer turned off when the camera is mounted on a tripod.

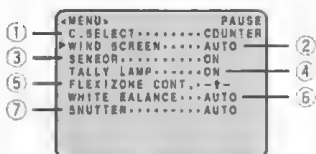
Using the Menus

E

Some of the camera's advanced functions are selected from menus which appear in the viewfinder.

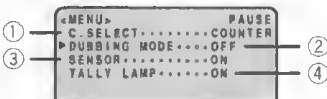
There are three menus. When the camera is in record pause mode, you can open the camera menu. When the program selector is set to **PLAY**, you can open the playback menu. When the program selector is set to **EDIT**, you can open the editing menu.

Camera menu



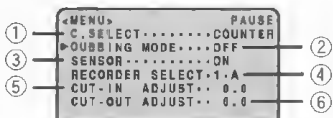
- ① Counter select p. 43
- ② Wind screen p. 42
- ③ Remote sensor p. 23
- ④ Tally lamp p. 27
- ⑤ FlexiZone control angle p. 31
- ⑥ White balance p. 36
- ⑦ Shutter speed p. 37

Playback menu



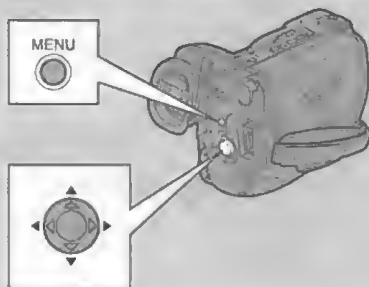
- ① Counter select p. 43
- ② Dubbing mode p. 56
- ③ Remote sensor p. 23
- ④ Tally lamp p. 27

Editing menu



- ① Counter select p. 43
- ② Dubbing mode p. 56
- ③ Remote sensor p. 23
- ④ Recorder select p. 47
- ⑤ Cut-In time adjustment p. 51
- ⑥ Cut-Out time adjustment p. 51

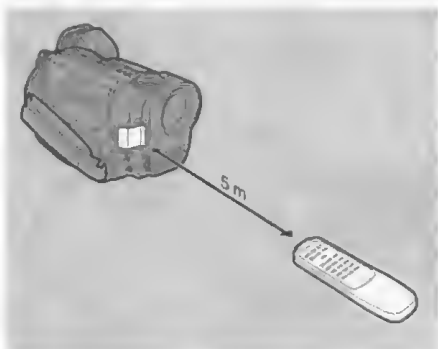
Turn to the appropriate page for a detailed explanation of each function.



1. Press the MENU button to open the menu.
2. Press the controller up or down to move the arrow up or down the display.
3. Press the controller sideways to turn the function on or off, or to change its setting.
4. Press the MENU button again to close the menu.

Notes:

- To return all the functions on one menu to their original settings (other than automatic date settings for time zone changes, recorder select and cut-in/cut-out adjust, open the menu then press and hold the COUNTER RESET button.
- You can display the menus on a connected TV screen using the wireless controller's ON SCREEN button.



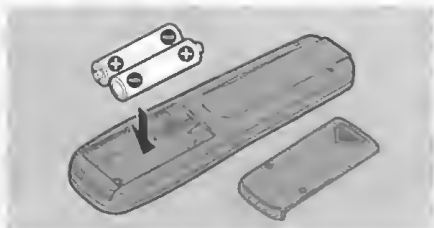
The supplied wireless controller can operate the camera from a distance of up to 5 m. Point it at the camera's remote sensor while you press the buttons.

The tally lamp lights up to let you know that the camera is in range and responding to your commands.

There are two functions which can only be operated using the wireless controller:

- Tape return (p. 16)
- On-screen viewfinder displays (p. 69)

Inserting batteries



Insert two AA batteries, following the ⊕ and ⊖ markings. Be careful not to reverse the polarity of the batteries.

Turning off the remote sensor



MENU

(see p. 22)

▶ SENSOR OFF

The remote sensor can be turned off to prevent interference from other Canon wireless controllers being used nearby.

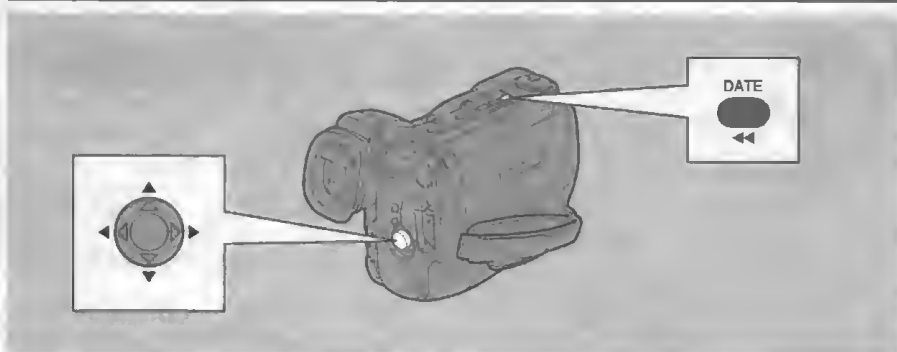
1. Open either the camera menu, the playback menu or the edit, and point the arrow at SENSOR.

2. Select the OFF setting and close the menu.

- S **OFF** appears in the viewfinder.

Notes:

- When using the wireless controller in brightly lit places or outdoors, the effective range will be shortened and narrow.
- The camera may have difficulty picking up the remote control signals at extremely close range.
- Do not leave the controller exposed to direct sunlight, or in hot or humid places.
- When the batteries run out, replace them both together.

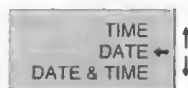


The date and/or time display appears in the viewfinder when you press the DATE button. If you start recording now, it will be superimposed on the scene. Press the button again to cancel the display.

Changing the style

When the date and/or time is displayed in the viewfinder, you can change the display style by pressing and holding the DATE button for one second. You can choose from three different date/time displays.

Press the controller up and down to set the display style.



The camera will remember which type of display you have selected.

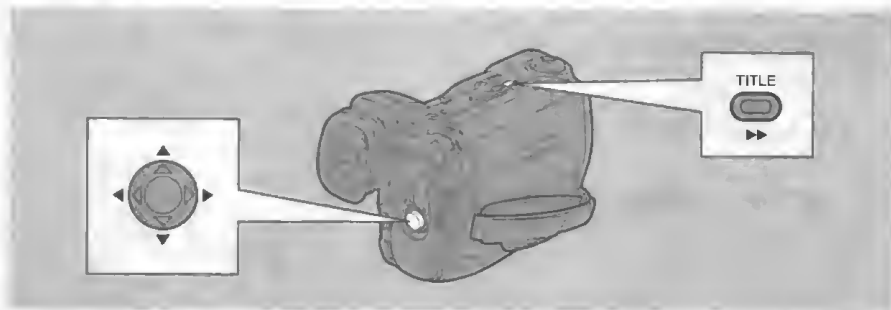
Setting the date and time

Set the date and time display when you first start using your camera. Install the backup battery before you begin (see p. 11).

1. Put the camera in record pause mode.
2. Press and hold the date button for about 3 seconds, until the year display in the viewfinder starts flashing.
 - If the menu is open, it will close automatically.
3. Press the controller up and down to change the year. Press sideways to move to another part of the display.
 - Press once to scan a year at a time. Press and hold to scan quickly.
 - Once you move from the year, the next part of the display starts flashing.
4. Set the months, days, hours, and minutes in the same way.
5. Press the DATE button when finished, and to start the clock.

Note:

- The date can be set to any year between 1997 and 2020.



You can write your own titles and store them in the camera's memory in order to add them to your recordings.

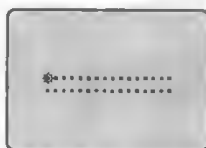
The title is displayed in the viewfinder when you press the **TITLE** button. If you start recording now, it will be superimposed on the scene.

Press the button again to cancel the display. If it does not appear in the viewfinder, it will not be recorded.

Writing a title

Enter your title in the camera's memory before you start recording. Remember to install the backup battery first (see p. 11).

The title can be one or two lines of up to 16 characters each.



These lines appear in the viewfinder when you are writing a title.

1. Put the camera in record pause mode.
2. Press and hold the **TITLE** button until the title lines appear in the viewfinder.

- If you have already entered a title in the memory, it will be displayed in the viewfinder.
- The first dot (or character) flashes to show where the cursor (the insertion point) is located.

3. Press the the controller sideways to move to another position in the display.

- Press once to move the cursor one space right. Press and hold to move it quickly.

4. Press the controller up and down to change the character.

- Press once to scan one at a time. Press and hold to scan quickly.
- You can choose from the following characters:

→ABCDEFGHIJKLMNOPQRSTUVWXYZ←
→·&*!?:;'"'"/.,9876543210·ÊÇÑÆÅÐÛÖÅ←

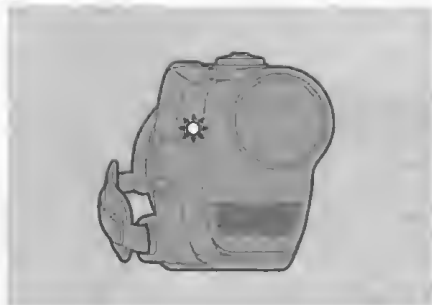
- If you choose the flashing dot ·, nothing will be recorded at this position.
- You can erase all the characters at and to the right of the cursor by pressing and holding the COUNTER RESET button for more than one second.

5. Repeat steps 3 and 4 until your title is complete, then press the TITLE button to enter the title in the memory.

Note:

- If it takes you more than about five minutes to write a title, the camera may turn itself off automatically. This can be avoided by removing the cassette before you begin.

Turning off the tally lamp



▶TALLY LAMP·OFF

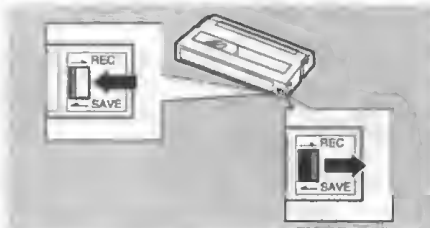
The tally lamp lets you know that the camera is recording. However, its flashing may be reflected into the lens during close-up recording, or when recording through glass.


1. Open the camera menu or edit menu and point the arrow at TALLY LAMP.

2. Select the OFF setting and close the menu.

- The tally lamp no longer flashes during recording, but it will still light up when the camera receives a signal from the wireless controller.

Protecting tapes from accidental erasure



To protect your recordings from accidental erasure, slide the red switch on the cassette so that it covers the hole. (This switch position is usually labeled SAVE or ERASE OFF.) When this cassette is loaded, the  mark will flash in the viewfinder if you put the camera in record pause mode.

If you want to record on the cassette again, slide the red switch back so the hole is open. (This position is usually labeled REC or ERASE ON.)




Record search

When the camera is in record pause mode, you can use record search to play the tape forwards or backwards to find the point where you want to start or restart recording. This is useful when you want to add a new scene to a previously used cassette. By using record search, you can ensure a smooth, noise-free join between the new scene and the old one.

1. **Make sure the camera is in record pause mode.**
2. **Press and hold the RECORD SEARCH + or – button while you check the picture in the viewfinder.**
 - The + button plays the recording forwards and the – button plays it backwards.
3. **Release the button when you find the point where you want to start recording.**
 - The camera returns to record pause mode.

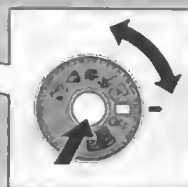
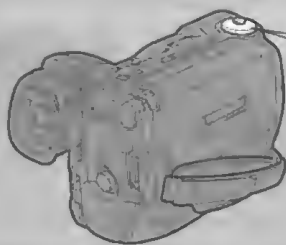
Record review

When the camera is in record pause mode, you can use record review to play back the last few seconds of your recording and then return automatically to record pause mode. You can quickly make sure that a scene has recorded properly and then go on to shoot the next scene, without producing any noise in the picture.



1. **Make sure the camera is in record pause mode.**
2. **Press and release the  (record review) button while you check the picture in the viewfinder.**
 - The camera rewinds the tape, plays back the last few seconds, and returns to record pause mode.

Note:

- Noise or skew (picture distortion) may appear on the screen during record search and record review.




The camera provides you with a choice of six recording programs. They use different combinations of camera settings in order to adjust the exposure and other functions to match the recording situation.

- For simple point-and-shoot operation, select the Easy Recording program. Turn the program selector to the  position.
- For normal shooting conditions, set the selector to  (Auto).
- For difficult recording conditions, the camera has four more specialized AE (auto exposure) programs.

Press and hold the lock button when you move the selector from the OFF position.

Easy Recording



The simplest way to use the camera is with the program selector set to the  position. The camera will take care of focus, exposure and other adjustments, leaving you free to point and shoot.


If you select this Easy Recording program, you cannot use:

- Exposure lock or compensation
- White balance set
- Digital effects
- Digital faders
- FlexiZone AF

Also, autofocus and image stabilization cannot be turned off.

Auto



In normal recording conditions, set the program selector to  (Auto). This is the same as the Easy Recording program, except that you now have the option of using any of the camera's manual functions — you can adjust focus and exposure, set the white balance, and so on.

- Choose this program if you want to use FlexiZone AE (p. 34) or the manual shutter (p. 37).

Sports



This program is useful for recording high-speed sports scenes in brightly lit conditions. Normal playback will be slightly jerky, but you will get clear images which can be analyzed frame by frame during slow or still playback on a VCR.

Spotlight



This program is designed for recording spotlight scenes, such as on a stage. The exposure is automatically adjusted for glare-free recordings of subjects lit by a concentrated light source.

Sand & Snow



Use this program in places where the background is so bright that the subject appears underexposed in the viewfinder — a sunny beach or ski resort, for example. As with the Portrait program, you may notice some shudder when recording moving subjects.

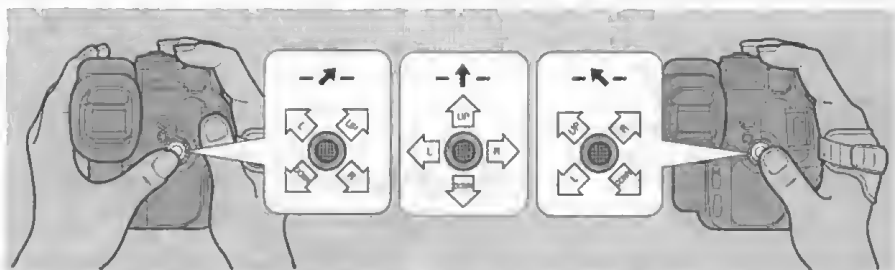
Portrait



Use this program outdoors to make the subject stand out from a softened foreground and background. It works well for still-lives and close-ups. The effect is most noticeable when the zoom position is between the middle range and the telephoto end. Focus manually for maximum accuracy, and be careful when recording action scenes, as this program may cause fast-moving images to shudder.

Notes:

- Avoid changing programs during recording as the brightness of the image may change suddenly.
- The specialized AE programs are not suitable for all kinds of lighting. The image may flicker, or a bright line may appear on the screen if you use them in the wrong lighting conditions.



Setting the FlexiZone to suit your hand

The FlexiZone controller can be used equally well with the right or left hand. Normally, pressing on the upper part of the FlexiZone controller moves the frame directly upward, pressing on the lower part moves it directly downwards, and so on. However, the directions the controller indicates can be shifted so that it works naturally with the thumb.



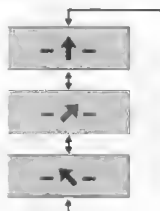
► FLEXIZONE CONT. -- ↑ --

1. Turn the program selector to a recording program and open the **STANDBY** cover.

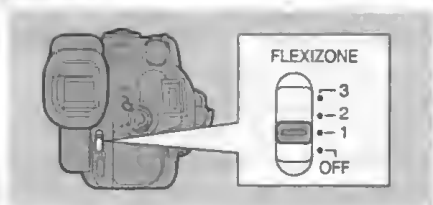
2. Open the camera menu and point the arrow at **FLEXIZONE CONT.**

3. Select the setting you want, and close the menu.

- The arrow in the viewfinder indicates the angle of the “up” direction.



Setting the FlexiZone control switch



Change the speed at which the FlexiZone frame moves in the viewfinder, or turn the frame off completely, using the FlexiZone control switch. The frame moves the fastest when set to position 3.

Note:

- The camera remembers **FLEXIZONE CONT.** setting until you set it again.

The camera can focus automatically. All you have to do is point it, and whatever is in the centre of the viewfinder will usually be in sharp focus. For more control over focusing, you can direct the camera to autofocus on objects anywhere in the frame using FlexiZone AF.

In addition, for greater freedom and to deal with subjects that are not suitable for autofocus (see p. 67) you can lock the focus or adjust it manually.

FlexiZone AF

FlexiZone AF makes autofocus much more powerful. Using the FlexiZone controller, you can select any object that appears in the viewfinder, and the camera will bring it into focus. Choose any program except Easy Recording when you want to use FlexiZone AF.

FlexiZone AF is useful in the following situations:



When your main subject is not in the centre of the viewfinder



When you want to shoot a moving subject



It also makes it easy to use "focus shift" techniques. You can direct the viewer's attention by focusing first on one part of the scene, and then on another.

1. Turn the program selector to any program except Easy Recording.

- The FlexiZone Control frame appears in the viewfinder.

2. Use the FlexiZone controller to move the frame over the subject.

- The controller can be moved in any direction. Press it repeatedly to move the frame little by little. Press and hold to move the frame quickly.
- The camera adjusts the focus to suit the area inside the frame.

Focus lock



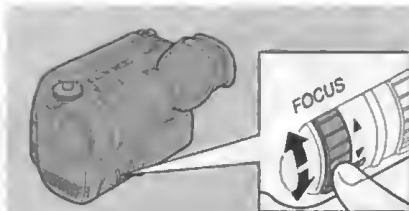
Press the FOCUS wheel to turn off autofocus. The focus remains locked at the point set by autofocus.

(AF OFF appears in the viewfinder.)

You can now adjust the focus manually. Press the FOCUS wheel again when you want to return to autofocus.

- If you zoom in on your subject after turning off autofocus, it may not stay in focus. It is generally best to adjust the zoom first, and then the focus.

Manual focus



Use the FOCUS wheel to set the focus.

- Turn it downwards (towards ∞) to move the focus further away.
- Turn it upwards to bring the focus nearer.

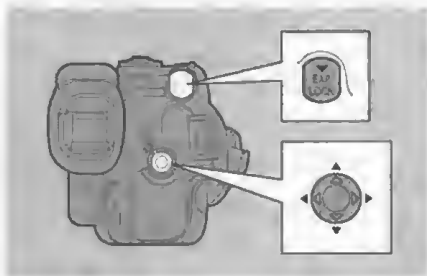
You can also adjust the focus without turning autofocus off — in this case autofocus will start again as soon as you release the FOCUS wheel.

Notes:

- The manual focus setting is cancelled if you turn the program selector to the OFF position, or if you select the ☐ (Easy Recording) program.
- When you are using the Easy Recording program, autofocus cannot be turned off, but you can override it temporarily by turning the FOCUS wheel.

The camera adjusts the exposure automatically, making sure that your pictures are neither too dark nor too light. There is a choice of six recording programs to deal with different recording conditions (see p. 29).

This section explains how to use two more exposure functions. These will give you added control over your recordings.



FlexiZone AE



The camera attempts to balance exposure for the whole scene. With FlexiZone AE you can choose which area of the scene to base exposure on, to ensure your subject is properly exposed – whether very dark or bright and wherever it is in the frame.

1. Turn the program selector to

[A].

- The FlexiZone control frame appears in the viewfinder.

2. Use the FlexiZone controller to move the frame over the subject.

- The controller can be moved in any direction.

3. Press the EXP LOCK button.

- The camera adjusts the exposure to suit the area that is currently inside the frame. You can move the frame to focus on something else, but the exposure area will not move with it.
- E.LOCK appears in the viewfinder.

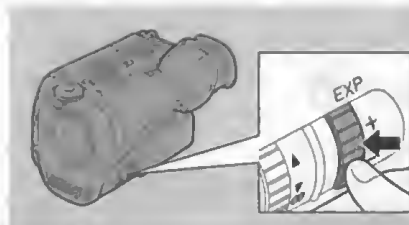
4. Press the button again when you want to cancel FlexiZone AE.

- The exposure is now adjusted to suit the centre of the screen again.
- Press the button once more if you want to adjust the exposure for the frame's new position.

Note:

- You can set the correct exposure for the subject with the FlexiZone AE, and then input a beautifully developed picture using the Film Adapter.

Exposure lock



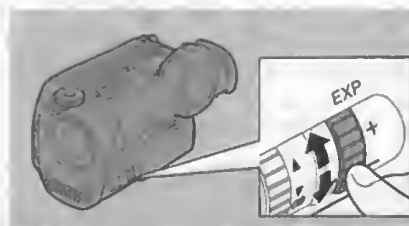
When you are recording in situations where the lighting may change suddenly, you can lock the exposure at the current level in order to control the brightness of the image.

To lock the exposure, press the EXP wheel. Press it again to return to the automatically set exposure level.

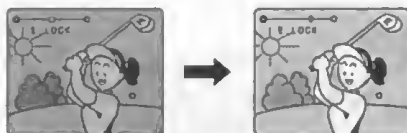
Note:

- When you are using the Auto Recording Program you can lock the exposure using either the EXP wheel or the EXP LOCK, but in both cases the exposure is based on the area inside the FlexiZone Frame.

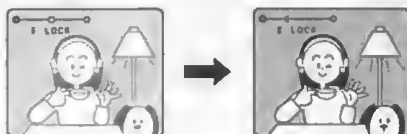
Exposure adjustment



When the exposure is locked, you can adjust it manually, making the picture brighter or darker in order to deal with difficult lighting conditions, or to manipulate the mood of the scene. The camera's iris can be manually set to any position from fully closed to fully open.




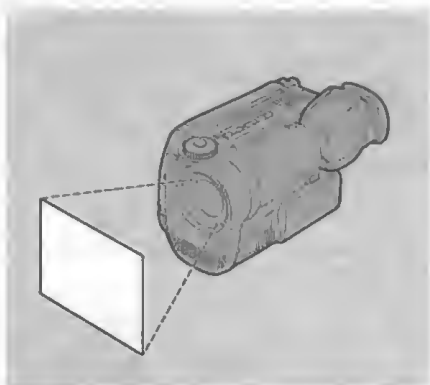
To make the recorded image brighter, turn the EXP wheel upwards (towards +). This may be necessary if the background is very bright, or if the subject is lit from behind.



To make the recorded image darker, press the EXP wheel downwards (towards -). This may be necessary if the background is very dark, or if the subject is spotlighted.

Notes:

- The standard exposure level depends on which recording program you have selected.
- Exposure lock is canceled if you change recording programs.
- You cannot use the exposure lock wheel with the program selector set to the  (easy recording) position. You are still able to lock the exposure, however, using the camera's EXP LOCK button.
- If you use the negative-positive conversion (Digital Effects p. 38) turn the exposure wheel in the opposite direction to that shown above. The display will also be opposite.



The camera's auto white balance system compensates for a wide range of lighting conditions. Although slight variations are unavoidable, colours will appear natural in virtually every situation.

In some cases, you will get better results by setting the white balance manually.

Setting the white balance manually will probably work better than auto white balance when shooting:



Subjects with one dominant colour, such as sky, sea or forest.



Close-ups



In rapidly changing lighting conditions



In places lit by certain types of fluorescent or mercury vapor lights.

Setting the white balance


MENU

(see p. 22)

▶ WHITE BALANCE...SET

1. **Open the camera menu and point the arrow at WHITE BALANCE.**
2. **Point the camera at a white object (such as a sheet of paper) and zoom in until it fills the viewfinder.**
3. **Select SET.**
 - The SET display flashes then remains lit.
 - Depending on the light source, the flashing may at times continue. The result will remain better than with the auto setting and you can continue recording.
4. **Close the menu.**
 - **WB** is displayed in the viewfinder.

Notes:

- If the lighting conditions change, reset the white balance by first returning to the AUTO setting, and then reselecting SET.
- Try to record with light from a single source. Correct white balance cannot be obtained for two types of lighting at once.
- You cannot set the white balance manually when the program selector is set to the ☐ (Easy Recording) program.
- When the program selector is set to the ☐ (Easy Recording) program or OFF position, the white balance setting returns to the AUTO.
- When the STANDBY cover is closed without changing the program selector, the current white balance setting remains in memory.



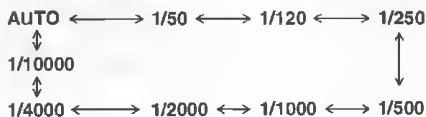
► SHUTTER... 1 / 250

The shutter speed is usually controlled automatically, but you can also set it manually, as long as the program selector is at the position.

1. Open the camera menu and point the arrow at SHUTTER.

2. Select the shutter speed you want.

- Press the controller sideways to choose from:



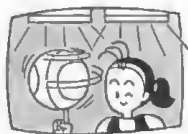
3. Close the menu.

- The selected shutter speed is displayed in the viewfinder. There is no display when the shutter is set to AUTO.

Which shutter speed?

Select the shutter speed which suits the speed and brightness of the subject:

1/120 second



To reduce the exposure level when shooting very bright scenes, or to give more stable pictures when shooting indoor sports.

1/250 to 1/1000 second



To record outdoor action on a cloudy day, or for a more stable picture when shooting from a moving car.

1/2000 to 1/10000 second



To record outdoor sports on a clear day so that you can freeze the action clearly. Normal playback will be slightly jumpy, but on a VCR with a noise-free still playback function, you will get clear images which can be analyzed frame by frame.

Notes:

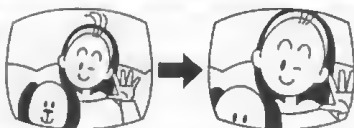
- The higher the shutter speed, the more light you will need.
- Make sure the sun does not appear in the viewfinder when the shutter speed is set to 1/1000 sec or faster.
- The shutter setting is cancelled if you move the program selector from the position.

Digital Effects

E

The camera can manipulate the recorded image in a variety of ways. The sound track is not affected.

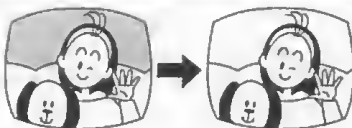
Close-Up



The Close-Up effect produces an extra 2X magnification. It digitally enlarges the central portion of the image to fill the whole screen.

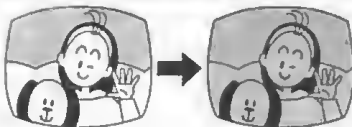
When you are using FlexiZone AF, the Close-up digital effect will magnify the area around the frame, instead of the center of the image.

Black & White



Records the image in black and white.

Sepia



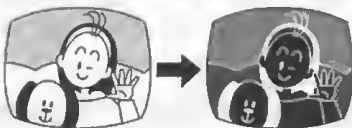
Records a monochrome image with a sepia tint.

Art




Adds a paint-like effect, called solarization, to the image.

Negative-Positive Conversion



Records a colour negative of the image. White appears as black, yellow appears as blue, green appears as red, etc. Also converts a negative image to an ordinary positive one. This can also be used with the optional accessory FP-100 Film Adapter to transfer 35mm film negatives to the camera.

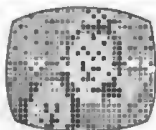
- Can only be used with the Auto recording program .
- You can use exposure adjustment, but you should turn the exposure wheel in the opposite direction. The display will also be opposite.
- You can also adjust the tint and colour.

16:9

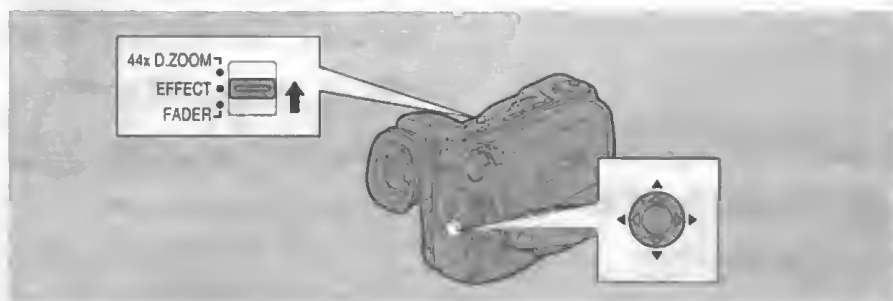


Produces images in the 16:9 format for playback on widescreen TVs.

Mosaic



Enlarges various pixels. The image is made up of noticeable squares of colour, giving a mosaic-like effect.

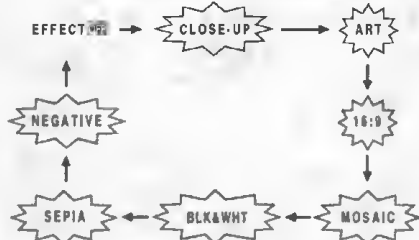


Using Digital Effects

1. Slide the digital effects slide switch to **EFFECT**, and set the program selector to a recording program.

2. Press the **SELECT** button to choose the effect you want.

- Each time you press the button, the flashing viewfinder display changes:



3. Press the **ON/OFF** button to activate the effect.

- The viewfinder display stops flashing and shines continuously.

4. Press the **ON/OFF** button to cancel the effect.

- The display starts flashing again. You can now select a different effect.

5. Press the **SELECT** button until **EFFECT OFF** is displayed.

- All digital effects are now OFF.

Using the Negative-Positive Conversion

The tint and strength of the colours can be altered with the controller.

Tint:

- Press the controller left or right. There are 15 possible settings. When converting a negative image, around setting 5 gives the converted image the most reddish tint, around 10 gives the most bluish tint.

Strength:

- Press the controller up or down. The settings for the overall strength of the colours varies from +5 to -5. Setting -5 gives a black and white image. Use this when converting black & white negatives.
- When you adjust the tint or colour, **M** appears in the viewfinder.
- When you set the Digital Effects OFF the tint and colour will return to a level set automatically by the camcorder and the **M** will disappear from the viewfinder.
- Also, when you change the film you need to return the tint and colour to the automatic levels in the same way.

Note:

- You cannot use digital effects when the program selector is set to the ☐ (Easy Recording) program.

Digital Faders

E

Use the digital fader functions to start or end a scene with a fade to or from black.

Horizontal Wipe



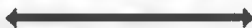
When you start recording, the picture begins as a thin horizontal line in the centre of the screen which gradually expands upwards and downwards until it fills the whole screen. When you end a scene, the image is wiped from the top and bottom of the screen.

Vertical Wipe



When you start recording, the picture begins as a thin vertical line in the centre of the screen which gradually expands sideways until it fills the whole of the screen. When you end a scene, the image is wiped from both sides of the screen.

4-Way Wipe



When you start recording, the image begins as a square dot in the middle of the screen which gradually expands to fill the screen. When you end a scene, the image wiped from all 4 sides simultaneously.

Fade Trigger




When you start recording, the scene gradually fades in from a black screen. When you stop recording, it gradually fades out.

Headphones and external microphone



For greater creative control over audio recording, you can connect an external microphone to the camera's MIC terminal.

You can monitor the sound while recording by attaching stereo headphones to the camera's  terminal.

Wind screen



▶ WIND SCREEN OFF

The camera has an automatic wind screen to prevent wind noise from interfering with the sound track. (It does not operate with an external microphone.) Turn it off when you want the microphone to be as sensitive as possible.

1. Open the recording menu and point the arrow at WIND SCREEN.

2. Select the OFF setting and close the menu.

- WS **OFF** is displayed in the viewfinder.

Unlike a conventional tape counter, which keeps track of the approximate running time of the tape in hours, minutes, and seconds, the Rewritable Consumer Time Code is automatically recorded on the tape, and precisely identifies each individual frame of the recording by hour, minute, second, and frame. This means that the UC-X40Hi/UC-X45Hi is capable of frame-accurate editing.

Time code is recorded continuously when recording is stopped and restarted, as long as there is no blank section between the two sections.

Displaying Time Code

1. **Open the camera menu, PLAY menu or edit menu and point the arrow at COUNTER.**
2. **Select the TIME CODE setting and close the menu.**
 - Tape return and counter reset functions cannot be operated while the time code is displayed.
 - The time code display will read “-:— :—:—” in the following situations:
 - During playback of a blank section of tape.
 - If the tape was recorded on a camcorder without a time code function.
 - If noise or damage prevents the time code from being read.
 - PCM dubbing or a 8mm VCR may cause the time code from that section of the tape to be erased.

Data Code

A data code, containing the date and time the recording was made is automatically recorded on a special data section of the tape.

Unlike the usual date and time display which can be permanently superimposed on recordings, the date index is automatically recorded on the tape's data area and can be displayed or hidden as desired during playback.

During playback or editing, the date index can be displayed or hidden while the camera is in stop, fast forward, rewind, play or still mode.

Note:

- To avoid accidental recording, make sure that you slide the red switch on the cassette so that it covers the hole (the switch position is usually labelled SAVE or ERASE OFF).

Press the DATE button in the back corner of the left hand side of the camera.

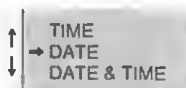
- Press it once to display, once more to hide it.

To set the display style

You can display either the date, the time, or both.

1. Press the DATE button in the back corner of the left hand side of the camera and hold it down for one second.

- A small menu appears. Select the style you want using the controller. Press the DATE button again to close the menu.



Date Search

During playback or editing, you can use data code information to find recordings by date using the DATE SEARCH function.

1. During playback, still playback, or stop, press the DATE SEARCH button.

- In the back corner of the left hand side of the camera.
- "DATE SEARCH" is displayed in the viewfinder.

2. Press FF or REW buttons to begin search.

- Press FF to wind forwards, or REW to wind backwards.
- When the camera detects a new date in the data code information, it starts playback.

Notes:

- The data code will read "— — —" in the following situations:
 - During playback of a blank section of tape.
 - If the tape was recorded before entering the date and time in the camera's memory.
 - If the tape was recorded on a camera without a data code function.
 - If noise or tape damage prevents the data code from being read.
- Data code may not be displayed correctly during record review or record search in reverse.

Notes:

- A date cannot be identified if the total recording time on that day was less than two minutes.
- Date Search playback may start just before or after the beginning of the located section.
- PCM dubbing on an 8mm VCR may cause the date code on that section of the tape to be erased.
- If the data code is not displayed correctly you will not be able to operate the date search correctly.

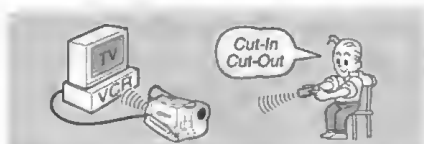
The Auto Editing Function

E

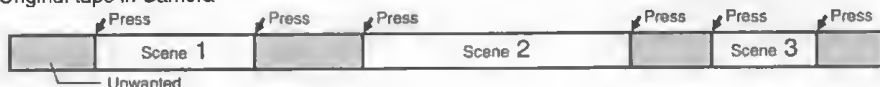
Using the Auto Editing Function is simple. Just watch your original tape and press the EXP LOCK button (or the EXECUTE button on the wireless controller) at the beginning and the end of each scene you want to record. This creates an editing program. Start the program, and the camcorder automatically records the scenes you selected onto the tape in your VCR. Before you record, you can preview

everything (p. 50), change the point a scene begins or ends (p. 55), and even delete (p. 53) or re-order scenes (p. 54).

- You can use either time code or the tape counter to edit a tape. The following procedure is for using time code to edit a tape recorded using the UC-X40Hi/UC-X45Hi.
- When you edit a tape recorded by video equipment utilising time code, we recommend that you use time code for editing.



Original tape in Camera



Final tape in VCR

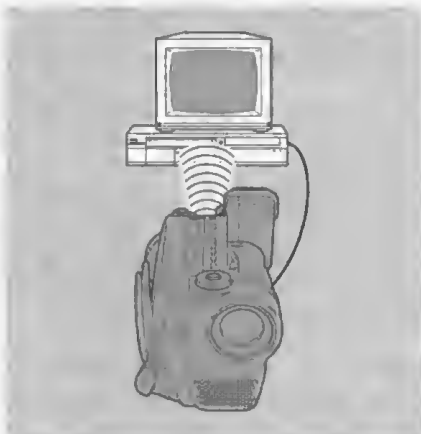


1. Prepare the camera. Connect the video cables, and place it so that it can control your VCR by remote control.
2. Watch the video. When a part you want to keep starts, press the EXECUTE button on the wireless controller. (Or the EXP LOCK button on the camera body.) Press the button again at the end of the part you want to keep. You can choose up to eight scenes this way.

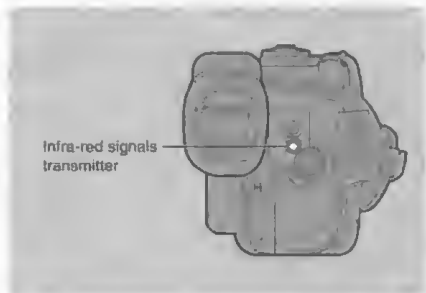
3. If you wish, preview the video. You can also re-order scenes, change the time they start and finish, or even delete them.

- To select a function, a scene, or a time, or to move a scene, use the controller. To activate a function use the EXECUTE button (or the EXP LOCK button.)

4. When everything is perfect, automatically record it to the VCR. Choose START in the menu, then press the EXECUTE button (or the EXP LOCK button.)



The UC-X40Hi/UC-X45Hi's Auto Editing Function enables you to smoothly rerecord scenes from an original tape in any order. You can then view the entire finished product and make all the fine adjustments you want before the final recording. It is easy to reorder or re-adjust scenes, to make your videos perfect.



Setting the Camera to Control your VCR

The camcorder's Auto Editing Function controls your VCR by using the same infra-red signals as the VCR's remote control.

Make sure the camera is in a spot where it can remotely control your VCR.

1. Connect the camera to the VCR.

- See the "Playback Connection" instructions on page 17.

2. Turn the TV on.

- Be sure to set it to the video channel, or set the TV/Video selector to Video.

3. Turn on the VCR and load a blank cassette.

- See your VCR instruction manual.

4. Turn the camera's program selector to EDIT.

- When you set the program selector to EDIT, all viewfinder displays are also displayed on the screen of the TV attached to your VCR. However, these displays will not be recorded onto the tape in the VCR.

5. Set the counter display to TIME CODE.

1. Check where the remote control sensor is on your VCR using its normal remote control.

2. Place the camera pointing directly at the sensor, not more 50cm away.

- Check that the sensor will pick up signals easily from this spot using the VCR's normal remote control.
- Make sure that the cables and the camera strap do not obstruct the signals.

3. Make sure that the VCR is in record-pause mode.

4. Make sure that all the other video equipments are turned off to avoid accidental recording.

```
<MENU>
C.SELECT.....COUNTER
DUBBING MODE....OFF
SENSOR.....ON
▶RECORDER SELECT.1-A
CUT-IN  ADJUST.. 0.0
CUT-OUT ADJUST.. 0.0
```

When you use the editing function for the first time, or with a different VCR, you should set your camcorder to send the correct remote control signals to your VCR.

The camera will not forget this setting unless you change it. Do not alter it again unless you change VCR.

Preparations & Setting Up

1. Make sure that the camera and VCR are set up as in "Preparations," p. 46 and "Setting up your camera to control your VCR," p. 46.

2. Open the edit menu and point the arrow to RECORDER SELECT.

- It is easiest to view the menu on the TV screen.

Setting RECORDER SELECT

Use the chart on p. 48 to find the RECORDER SELECT settings for your brand of VCR.

Make sure the camcorder's infra-red control signals can reach the VCR, and the VCR is in record pause mode. (Ready to record and on pause.)

1. Set RECORDER SELECT to the first setting for your brand of VCR.

- For example, 7-A if you have a JVC VCR.
- Press the controller to the right to change the setting.

2. If the setting is correct, the VCR will start recording automatically.

- As long as the camera is pointing at the VCR's remote sensor while you change the setting.

3. If the VCR does not start recording, try the next setting.

- Press the controller sideways (to 7-B in the above example).
- Try each setting in turn until the VCR starts to record.

4. Once the VCR starts to record, check that the setting is right. Put the VCR on record-pause again, then press the camera's EXP LOCK button.

- The VCR should start to record for a few seconds, and REC appear in the viewfinder and on the TV screen. Then it will automatically pause and PAUSE appear in the viewfinder and on screen.
- If not, then the setting is still not right. Try the next setting.

RECORDER SELECT

The camera's Auto Editing Function can remotely control almost all brands and models of VCR. VCR remote control signals vary depending on model and brand. First, choose the right RECORDER SELECT setting for your VCR. The number indicates the VCR brand. The letter indicates the set of signals.

| Brand | Settings | Brand | Settings |
|------------|--------------|------------|--------------|
| Canon | 1-A to 1-B | Toshiba | 15-A to 15-B |
| Aiwa | 2-A to 2-C | GE | 16-A to 16-B |
| Akai | 3-A to 3-C | RCA | |
| Fujitsu | 4 | Magnavox | 17-A to 17-B |
| Funai | 5 | Philips | 18-A to 18-D |
| Hitachi | 6-A to 6-B | Seleco | |
| JVC | 7-A to 7-C | Rex | |
| Mitsubishi | 8-A to 8-D | Thomson | |
| NEC | 9-A to 9-D | Saba | |
| Panasonic | 10-A to 10-F | Nordmende | |
| Blaupunkt | 12-A to 12-D | Ferguson | 19-A to 19-C |
| Quasar | | Grundig | 20-A to 20-D |
| Pioneer | 11 | Nokia | 21-A to 21-C |
| Sanyo | 13-A to 13-C | Telefunken | 22-A to 22-B |
| Fisher | | Zenith | 23 |
| Sharp | 14-A to 14-C | Samsung | 24-A to 24-B |
| Sony | | GoldStar | 25 |

as of July 1997

Notes:

- If your brand of VCR is not on the chart or you cannot find the correct setting, hold the controller down to the right until the VCR starts to record. This way you can try all possible settings in about 80 seconds.
- Once you find the correct setting, remember this and do not change it unless you change VCR.
- See p. 51 for details of the "cut-in" and "cut-out" adjustments.
- If you try all the numbers and letters, but the VCR has still not started to record:
 - Check the VCR is ready to record, and on pause.
 - Check the VCR can receive signals from where the camera is, and that nothing is blocking the signals.
 - Go back and try to set it again.
 - It is unlikely, but you may have a VCR the Auto Editing Function cannot control. If so use the Simple Editing method on p. 56.

Choosing a scene (SET function)

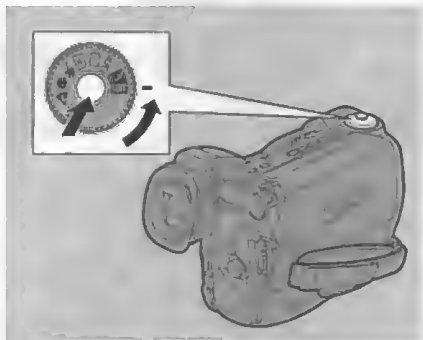
You can put a scene into the editing program by pressing the EXP LOCK button at the point where you want the scene to start and at the point where you want it to end. (The “cut-in” and the “cut-out” points.)

Instead of using the controls on the camcorder body, you can use the wireless controller. The EXECUTE button corresponds to the EXP LOCK button. The four arrows correspond to the controller.

1. Make sure the program selector is set to **EDIT**.
2. Make sure that the **SET** function at the bottom of the screen is highlighted.
 - If it is not, move the arrow down the screen with the controller to the bottom line. Then press the controller sideways to change the highlighted function.
3. Start the tape with the “**PLAY**” button: ►.
 - You can use the ►, ◀◀, ▶▶, ||, and ■ buttons or special playbacks in the same way as in playback mode.
4. At the start of a scene you want to record, press the **EXP LOCK** button.
5. Press it again at the end of the scene.

- The beginning and end of the scene according to the counter (the “cut-in” and “cut-out” points) are displayed on the screen.
- The camera will not let you put in a “cut-in” point later than its “cut-out” point, nor a “cut-out” point earlier than its “cut-in” point.
- You will not be able to make scenes shorter than about two seconds in length.

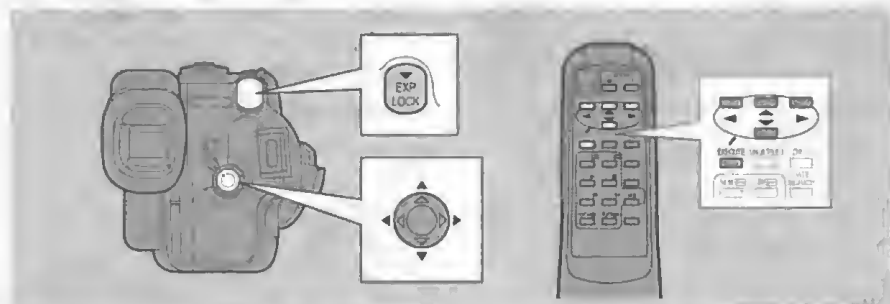
6. You can program the Auto Editing Function to remember up to 8 different scenes in the same way.



| | | | |
|----------------------------------|----|---------|----|
| TOTAL / 0:43:56 0:10:42:14 | | | |
| CUT-IN | | CUT-OUT | |
| 0:24:26 | 24 | 0:45:10 | 13 |
| 0:47:54 | 23 | 0:55:37 | 10 |
| 0:01:02 | 15 | 0:13:12 | 03 |
| 0:05:00 | 22 | 0:08:24 | 01 |
| ► SET DELETE PREVIEW START CLEAR | | | |

Note:

- **TOTAL** at the top of the menu tells you the total running time of all the scenes you have selected. For best results, when editing from the start of the tape, let the tape run for about 20 seconds according to the counter. Set the first cut-in point after that. Also, avoid setting the last cut-out point in the last ten seconds of the tape.



| | |
|---|--------------|
| TOTAL / 0:43:56 | 0:10:42:14 |
| CUT-IN | CUT-OUT |
| 0:24:28:24 | → 0:45:10:13 |
| 0:47:54:23 | → 0:55:37:10 |
| 0:01:02:15 | → 0:13:12:03 |
| 0:05:00:22 | → 0:08:24:01 |
| ▶ SET DELETE PREVIEW START CLEAR | |

| | |
|---------------------------------------|--------------|
| TOTAL / 0:43:56 | 0:10:42:14 |
| CUT-IN | CUT-OUT |
| ▶ 0:24:28:24 | → 0:45:10:13 |
| 0:47:54:23 | → 0:55:37:10 |
| 0:01:02:15 | → 0:13:12:03 |
| 0:05:00:22 | → 0:08:24:01 |
| SET DELETE PREVIEW START CLEAR | |

Preview function

You can preview the editing program. The PREVIEW function plays the whole program, automatically pausing at the "cut-in" and "cut-out" of each scene to help editing.

1. Use the controller to move down the screen to the bottom line, and then across to the PREVIEW function.
2. Press the EXP LOCK button.
 - The camera will now play all the scenes in the order you have programmed them.
 - In PREVIEW mode the tape starts a little before each "cut-in" point. It will pause for 2 seconds precisely at the "cut-in" point. It pauses again at the "cut-out" point.

Running the editing program (START function)

1. Make sure the VCR is ready to record and on pause.
2. Use the controller to move down the screen to the bottom line, and then across to the START function.
3. The editing program starts when you press the EXP LOCK button.
 - The camera automatically records the scenes you selected onto the tape in the VCR.

Cut-In and Cut-Out Adjustments

E

Setting the Cut-In and Cut-Out Adjustments

The point where a scene starts is called the "cut-in" point, and the point where it ends is called the "cut-out" point.

Some VCR models take a second or more to actually start recording after they receive the command signal. If this happens you could lose the beginning of the scene. CUT-IN ADJUST prevents this by sending the command a little early.

Similarly, some models take some time to react to the command to stop recording. Some models also rewind slightly after they stop. You could therefore record more than you wanted, or lose the end of the scene. CUT-OUT ADJUST prevents this, by sending the command a little early or late.

If you have these problems with your VCR, reset these adjustments.

Use the EDIT menu to set the "cut-in" and "cut-out" adjustments.



▶ CUT-IN ADJUST...-1.5
CUT-OUT ADJUST...0.8

1. Open the editing menu and point the arrow at CUT-IN ADJUST.

- Point it at "CUT-OUT ADJUST" to set the cut out adjustment.

2. Adjust the setting.

- CUT-IN ADJUST can be set up to 5 seconds early. (-5.0)
- CUT-OUT ADJUST can be set from one second early to five seconds late. (-1.0 to +5.0)
- This can be set to an accuracy of one-tenth of a second.

How to calculate the best adjustment for the "cut-in" and "cut-out" points

1. Set the camcorder and the VCR up as in "Preparations", p. 46, and in "Setting your camcorder to control your VCR", p. 46.

2. Open the edit menu and point the arrow at RECORDER SELECT.

- Make sure the setting is right for your VCR. If you are not sure, see pp. 47-48.

3. Press the EXP LOCK button.

- The VCR records the menu screen for 10 seconds, then pauses.
- As it does, the words "CUT-OUT" are displayed at the bottom of the screen. Next to this there is a digital timer, accurate to one-tenth of a second. The timer counts down from +5.0 to -1.0 seconds. At precisely 0.0 seconds, the camera sends the message to pause.

4. Wait for a few moments.

- The VCR starts to record again, then stops.
- This time, the words "CUT-IN" and a timer are displayed at the bottom of the screen. The timer counts from 0.0 to -5.0 after the camera sends the message to start recording.

5. Repeat steps 4 and 5 at least twice more.

- This way you should have at least three recordings of the CUT-IN and CUT-OUT timers.

6. Rewind the VCR tape and play back the recordings of the menu and the timers.

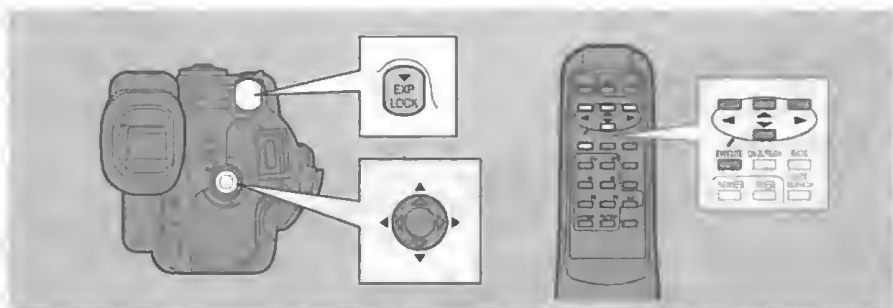
- Look at the time the CUT-OUT timer stops and CUT-IN timer starts. These times are what the CUT-OUT ADJUST and CUT-IN ADJUST settings should be.
- For maximum accuracy, take an average of at least three readings.
- If your VCR has a frame advance function or a jog dial, use it to find the precise starting times most conveniently.

7. Set the CUT-OUT ADJUST and CUT-IN ADJUST settings to the average of the three readings.

- see p. 55.

Note:

The camcorder will remember the cut-in and cut-out adjustment settings until you change them.



Clearing the whole display (CLEAR function)

```
TOTAL / 0:43:56 0:10:42:14
CUT-IN CUT-OUT
0:24:28:24 → 0:45:10:13
0:47:54:23 → 0:55:37:10
0:01:02:15 → 0:13:12:03
0:05:00:22 → 0:08:24:01
```

▶ SET DELETE PREVIEW START **CLEAR**

This deletes the whole program.

1. Use the controller to move down the screen to the bottom line, and then across to the CLEAR function.

2. Press the EXP LOCK button.

- All the lines are now blank. All data is deleted.
- Please do not do this by mistake, or you will have to start again from the beginning.

Deleting a scene (DELETE function)

```
TOTAL / 0:43:56 0:10:42:14
CUT-IN CUT-OUT
0:24:28:24 → 0:45:10:13
▶ 0:47:54:23 → 0:55:37:10
0:01:02:15 → 0:13:12:03
0:05:00:22 → 0:08:24:01
```

▶ SET **DELETE** PREVIEW START CLEAR

You can delete a scene from the program.

1. Use the controller to move down the screen to the bottom line, and then across to the DELETE function.

2. Use the controller to move directly up the screen to highlight the scene you want to delete.

- Push the controller straight up.

3. Press the EXP LOCK button.

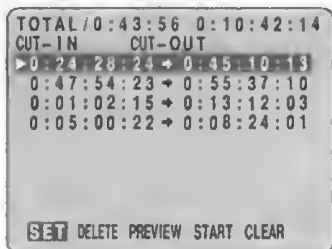
- The scene is deleted and that line is now blank.
- You can insert a new scene here if you wish, using the SET function as described in "Choosing a scene" above.
- If this line is left blank, this will not affect the rest of the recording, and the next scene will smoothly follow the previous one.

Reordering Scenes

E

You can move the scenes around and reorder them.

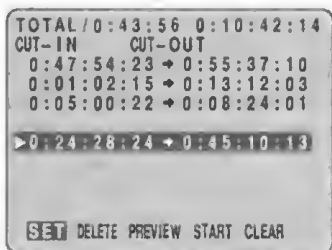
1. **Make sure the SET function at the bottom of the screen is highlighted.**
 - If not, use the controller to move down the screen and then across to SET.
2. **Move up or down the screen with the controller to the scene you want to move.**
3. **Move the controller to the left once to highlight the entire line.**



54

Editing

4. **Move the controller up or down to where you want it.**
 - The line of data moves with it.



5. **Repeat as necessary with the other scenes until the program is ordered as you want it.**

**Changing the point where a scene starts or ends.
("cut in" / "cut out" point.)**

1. Make sure the SET function at the bottom of the screen is highlighted.

- If not, use the controller to move down the screen and then across to SET.

2. Move up or down the screen with the controller to the scene you want to alter.

3. Move the controller to the left or right until the time you wish to change is highlighted.

- Move it to the right once, and the "cut-in" point is highlighted.

▶ 0:24:28:24 ◀ 0:45:10:13

- Move it to the right again, and the "cut-out" point is highlighted.

▶ 0:24:28:24 ▶ 0:45:10:13

- Move it to the right once more, and the whole line is highlighted. Use this if you want to move the line, without changing the times (see "Reordering Scenes" above.)

▶ 0:24:28:24 ▶ 0:45:10:13

- Move it to the right again, and none of the line is highlighted.
- Move the controller to the left to go through the same sequence in reverse order.

4. Use the playback keys as normal to operate and play the tape again. (First rewind or fast forward if necessary.)

5. Press the EXP LOCK button to indicate where you now want the scene to start or end.

- This position according to the counter will be displayed in the viewfinder.

Simple Editing to a VCR

E

If you cannot find the appropriate remote control setting for the camcorder to control your VCR, you still can edit a tape to the VCR as follows.

Preparations



▶ DUBBING MODE...ON

1. Connect the camera to the VCR.

- See "Playback Connection" on p. 17.

2. Prepare the TV and VCR.

- Turn on the TV and set it to the video channel, or set the TV/VIDEO selector to VIDEO.
- Turn on the VCR, and set its input selector to LINE. Load a blank cassette, and put the VCR in record pause mode.
- See your TV and VCR instruction manuals for details.

3. Set the camera's program selector to **PLAY**, and load your recorded cassette.

4. Open the playback menu and point the arrow at **DUBBING MODE**.


5. Select the **ON** setting and close the menu.

Basic editing



1. Find a point on your recorded cassette slightly ahead of the section you want to copy.
2. Start to play it back while you monitor the picture on the TV.
3. Start recording on the VCR as soon as the section you want to copy appears on the screen.
4. Pause the VCR at the end of the section you want to copy, then stop playback on the camera.
5. Repeat steps 1 to 4 until your edited recording is complete.

REMOTE terminal



The  REMOTE terminal allows you to connect the camera to equipment such as the VE-100 Video Editor (p. 62). Some buttons on other editing equipment may operate differently from those on the camera.

Notes:

-  (LANC) is a trademark. It stands for Local Application Control Bus System.
- We cannot guarantee the results when connecting to equipment not bearing the LANC  symbol.

Holding the camera



For maximum stability, place your right hand through the grip belt and keep your right elbow pressed against your body. Rest your left hand lightly on the side of the camera. With practice, you will be able to operate the controls by touch, without taking your eye off the action.

Using a tripod



To prevent any unwanted movement, you can mount the camera on a tripod, and operate it with the wireless controller.

- When you are using a tripod, be careful not to leave the viewfinder exposed to bright sunlight or it may melt. (The light is concentrated by the viewfinder lens.)
- Make sure that the fastening screw of the tripod is no longer than 5.5 mm, or it will damage the camera.

Composition



The most important element in the scene does not have to be in the center. For a more interesting picture, try to position your subject so it is slightly to one side. Leave some space on the side of the frame that the subject is facing or moving towards.



Don't cut off the top of the subject's head, and don't cut people off at the neck, hips or knees (move a little bit above or below).



Watch out for distracting objects in the background.

Picture angle



Long shot



Medium shot



Close-up

Instead of zooming while recording, try to choose your picture angle before you begin. A good way to tell a story with video is to begin with a long shot that establishes the situation, and then move in with medium shots and close-ups to show the details. Remember to change your viewpoint for each shot.

Remember that any camera movement or change in picture angle should have a definite purpose. Avoid unnecessary or half-hearted movements.

Camera moves



Pan

Use pans to record a landscape or follow a moving subject. Decide the area you want to cover and stand facing the end of your panning angle. Without moving your feet, turn your waist to the starting position. Start recording, and after a few seconds begin to turn slowly from the waist. Hold the final image for a few seconds before you stop recording.

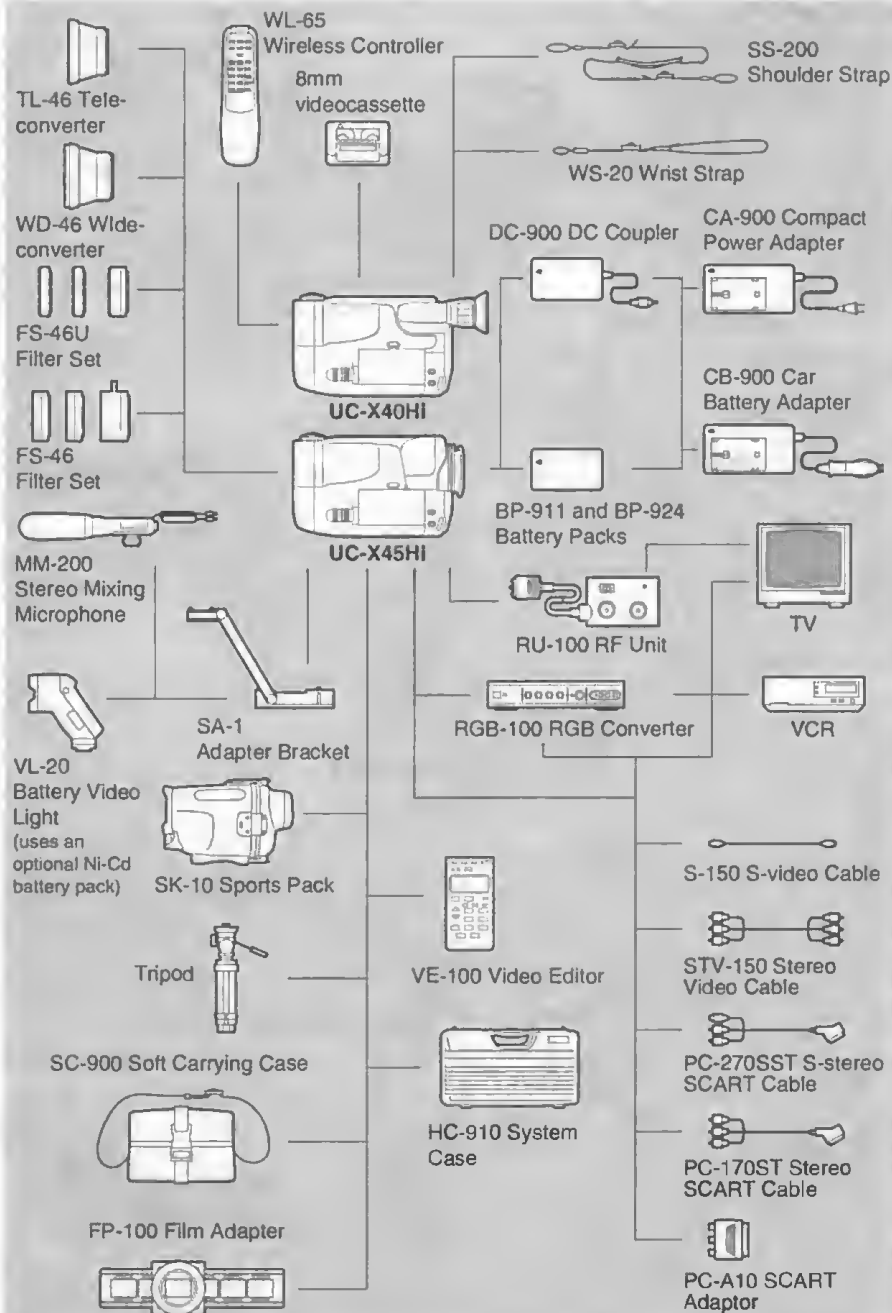


Tilt

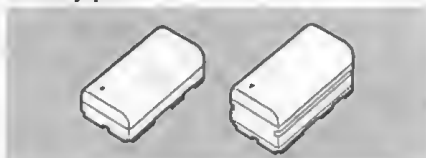
Tilt the camera up to exaggerate the height of the subject. Tilt down from the top of a building, for example, as an introduction to subjects at the bottom.

Video System

• Availability differs from area to area **E**

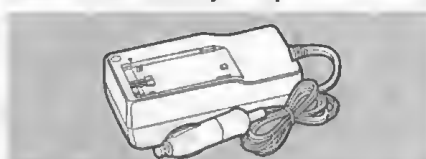


Battery packs



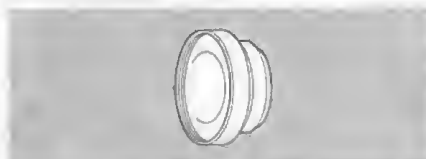
The BP-911 is supplied as standard. For longer recordings, your camera can also be powered by the high-capacity BP-924.

CB-900 Car Battery Adapter



Power your camera, or recharge battery packs on the move. The car battery adapter plugs into your car's cigarette lighter socket and runs off a 12-24 V DC negative ground battery.

TL-46 Tele-converter



This tele-converter lens increases the focal length of the camera lens by a factor of 1.4. The zoom and autofocus operate as usual, so you can take full advantage of the extra range.

- The image stabilizer is not as effective as usual when the tele-converter is attached.
- If you have a 'professional-type' monitor, there may be some vignetting.

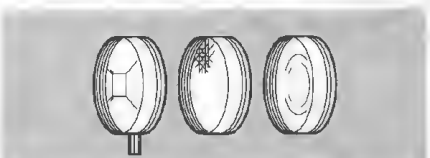
WD-46 Wide-converter



This lens decreases focal length by a factor of 0.7, giving you a wide perspective for indoor shots or panoramic views - and you can still use both zoom and autofocus.

- If you have a 'professional-type' monitor, there may be some vignetting.

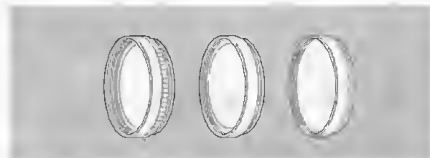
FS-46 Filter Set



Three special effects filters to add a creative touch to your recordings: multiple-image, R-cross and zoom-spot.

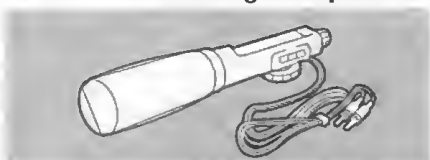
- Focus manually when using special effects filters.

FS-46U Filter Set



Ultraviolet, neutral density and circular polarizing filters to help you take control of difficult lighting conditions.

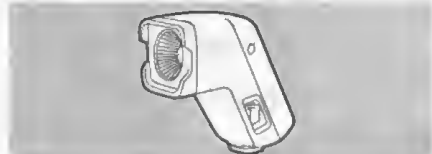
MM-200 Stereo Mixing Microphone



The MM-200 mixes live sound and music, so you can create the ideal sound track for your video productions.

- The sound and DC cables can be separated from each other at any point along their length.

VL-20 Battery Video Light

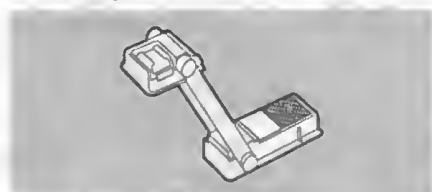


This compact yet powerful video light can be used for both indoor and outdoor shooting.

There are no cables — an optional Ni-Cd battery pack fits neatly inside.

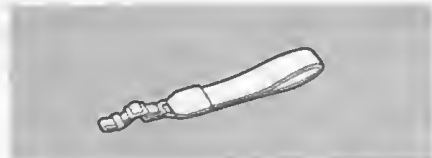
- The VL-20 uses BP-711, BP-E722 or BP-729 Ni-Cd battery packs. To charge them, you will need an optional adapter, such as the CA-R200 or CA-R300.

SA-1 Adapter Bracket



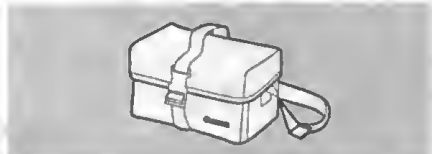
Attaches a video light or microphone securely to the camera.

WS-20 Wrist Strap



Provides an extra measure of protection for active shooting.

SC-900 Soft Carrying Case



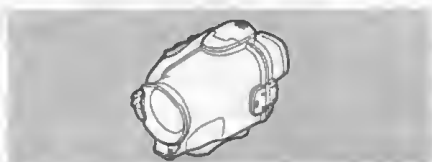
This lightweight bag keeps the camera within easy reach without weighing you down or getting in the way.

HC-910 System Case



This solid, lockable case provides safe and stylish protection for the camera and accessories during transportation and storage.

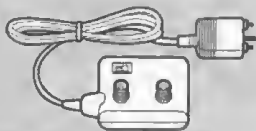
SK-10 Sports Pack



Completely waterproof your camera, while retaining control of its important functions. You can freely record active holidays at the beach, or on the ski slopes.

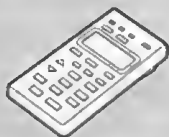
- The sports pack can be used underwater at depths of up to 3 metres. For safety reasons, it is designed to float, so it is best used close to the surface.
- When installing the UC-X40Hi/UC-X45Hi in the sports pack, use mounting plate B, and guide mark 3.


RU-100 RF Unit



This optional converter allows the camera to be connected to the antenna terminal of any TV. It can be a useful accessory while traveling, as you may need it if you want to connect the camera to a TV in your hotel room.

VE-100 Video Editor



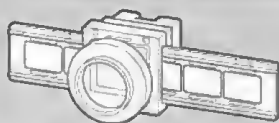
This easy-to-use editor controls the camera and a video recorder simultaneously for fast, accurate assembly editing. Not only does it link up to any  (LANC) terminal, it can also learn the remote control signals used by most VCRs.

RGB-100 RGB Converter



Even without an S-video input, you can appreciate the difference Hi8 makes — the RGB-100 converts the camera's S-video signal to RGB, and links up with your TV's SCART terminal.

FP-100 Film Adapter



With this one can reverse negative film pictures and record them as photographs on tape, view them on TV, or put them into a PC. Also, using the Advanced photo system's optional accessory* (Film Viewer IW-50), one can process Advanced photo system film.



This mark identifies genuine Canon 8mm video accessories. When you use Canon video equipment, we recommend Canon-brand accessories or products bearing the same mark.

* Availability differs from area to area.

Cautions

Avoid high temperatures and high humidity.

- Do not leave the camera inside a car in hot weather, for example.
- Be careful of heat radiating from video lighting equipment.
- Do not take the camera into a humid room.

Avoid sudden changes in temperature.

- If you take the camera from a cold place to a warm place, condensation may form on the lens and internal parts (see p. 65).

Do not point the lens or viewfinder at strong light sources.

- Never point it at the sun, and do not leave it aimed at a bright subject.
- Be especially careful when leaving the camera on a tripod.

Avoid magnetic or electric fields.

- Do not use the camera close to TV transmitters, portable communication devices or other sources of electric or magnetic radiation. They may cause picture interference, or permanently damage the camera.

Do not expose the camera to water.

- Cover the camera when you are recording in rain or mist.
- There is a risk of electric shock if water gets inside the camera — contact qualified service personnel as soon as possible.

Protect the lens.

- Sand and dust can damage the lens — be especially careful on windy days.

Handle the camera gently.

- Vibration or shock can cause damage.
- Do not use the viewfinder as a carrying handle.

Keep the camera the right way up.

- Try to keep your camcorder the right way up and horizontal during use. When a cassette is loaded, if you lay the camcorder on its side or upside down the tape position may change. This could result in lower performance or even malfunction.
- Be especially careful when the tape is moving — Handling the camera with respect, so that you can use it trouble free.

Do not disassemble the camera.

- This is very dangerous as there is a risk of electric shock — if the camera does not function properly, take it to qualified service personnel.

Storage

If you do not intend to use the camera for some time, store it in an area which is free of dust and moisture, and where the temperature is no higher than 30°C. After storage, check each part and function of your camera to make sure everything is still working properly.

Note:

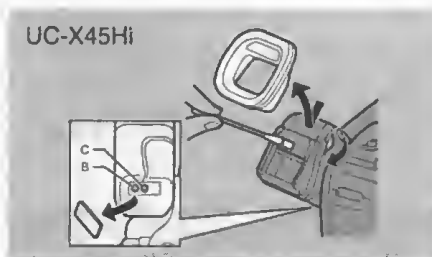
- These cautions also apply to accessories such as battery packs and cassettes.

Maintenance

Viewfinder



- Clean the viewfinder screen using a blower brush. First, remove the eyepiece: press and hold the **RELEASE** switch, pull the eyepiece out, turn it anticlockwise, and slide it off. To reattach it, align the mark on the eyepiece with the mark on its base and press it on until it clicks back into place.



- The viewfinder picture can be adjusted when necessary by peeling off the cover on the side of the viewfinder, and turning the screws marked **B** (brightness), and **C** (colour).
- Clean the viewfinder screen using a blower brush or a dry cotton swab.

Camera body and lens

- Use a soft, dry cloth to clean the camera body or lens. Never use chemically treated cloth or volatile solvents such as paint thinner.

Video heads

- Clean the video heads only when necessary, preferably using Canon's CC-8 Video Head Cleaning Cassette.
- Do not use a wet-type cleaning cassette, as this can cause damage.

Using the camera abroad

Power sources

- You can use the compact power adapter to operate your camera and charge battery packs in any country where the electricity supply is between 110 and 240 V AC, 50/60 Hz. Contact your Canon dealer for information about plug adapters for overseas use.

TV playback

- Although you can always play back your recordings in the viewfinder, your camera can only be connected to TVs which use its PAL system. This TV system is used in the following countries:

Algeria, Australia, Austria, Bangladesh, Belgium, Brunei, China, Denmark, Finland, Germany, Hong Kong, Iceland, India, Indonesia, Ireland, Italy, Jordan, Kenya, Kuwait, Liberia, Malaysia, Malta, Mozambique, the Netherlands, New Zealand, North Korea, Norway, Oman, Pakistan, Portugal, Qatar, Sierra Leone, Singapore, South Africa, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Tanzania, Thailand, Turkey, Uganda, United Arab Emirates, United Kingdom, Yemen, former Yugoslavia, Zambia.

Condensation

Condensation may form on the camera when it is moved from a cold place to a warm place. Using the camera while condensation is present can damage both the tape and the camera.

Condensation may become a problem:



When you bring the camera from a cold place to a warm room



When a cold room is heated rapidly



When the camera is left in a humid room




When the camera is taken from an air-conditioned room to a warm, humid place

Protecting the camera from condensation

- Before you bring the camera to a warm or humid place where condensation is likely to be a problem, unload the cassette and put the camera in a plastic bag. Wait until the camera reaches room temperature before you take it out of the bag.

What happens when condensation is detected

- The power indicator flashes and the  mark flashes in the viewfinder. If there is a cassette in the camera, it stops automatically and EJECT flashes in the viewfinder.
- The camera may not detect the condensation immediately — the condensation warning may not start flashing for 10 to 15 minutes.
- You cannot load a cassette when condensation is detected.

What you should do

- Remove the cassette, leave the cassette compartment open, and turn the camera off.
- Leave it in a dry place until the condensation evaporates. After the condensation warning stops flashing, wait at least another hour before trying to use the camera.



Refer to this checklist first if you have any problems with your camera. Possible explanations are given below each problem on the list — turn to the page numbers in brackets for more information.

Make sure that the camera is properly connected if you are using it with a TV or VCR. Consult your dealer or service outlet if problems persist.

❑ The camera won't turn on.

- The battery pack is exhausted, or not properly attached (p. 9).

❑ The power indicator is flashing.

- Check the viewfinder displays (p. 69).

❑ The start/stop button doesn't work.

- You haven't selected a recording program (p. 29).
- You haven't loaded a cassette, or it is set for erasure prevention (p. 12, 27).

❑ Nothing happens when I press the buttons.

- You haven't turned the camera on (p. 6, 14).
- You haven't loaded a cassette (p. 12).
- The battery pack is exhausted, or not properly attached (p. 9).
- You have selected the Easy Recording program (p. 29).
- One of the menus (p. 22) is displayed in the viewfinder.
- The tape has reached the end (p. 12).

❑ The camera turned itself off.

- You left it in record pause mode for more than about five minutes (p. 6).
- The battery pack is exhausted (p. 9).

❑ There's no picture in the viewfinder.

- You haven't taken off the lens cap (p. 13).
- You haven't selected a recording program (p. 29).
- The STANDBY cover is closed (p. 6).

❑ The camera doesn't remember the date and time (or other settings) when it's turned off.

- You haven't installed the backup battery (p. 11).

? The camera won't focus.

- The viewfinder lens needs adjusting (p. 7).
- The lens is dirty (p. 64).
- Autofocus is turned off (p. 32).
- Some subjects are not suitable for autofocus. In the following situations, you will often get better results using manual focus (p. 33).



Rapidly moving subjects



Several subjects in the viewfinder at different distances



Subjects with horizontal stripes



Subjects without much contrast (such as a white wall)



Subjects behind glass



Slanted subjects



Subjects which reflect too much light (such as shiny car exteriors)



Dark subjects



Night scenes

? The wireless controller doesn't work.

- The remote sensor is turned off (p. 23)
- The batteries are exhausted (p. 23).

? The tally lamp doesn't flash.

- It is turned off (p. 27).

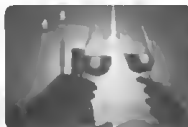
? The digital functions (zoom, effects or fader) don't work.

- You can only use one type of digital function at a time. Make sure the DIGITAL switch is set properly (p. 20, 39, 41).
- Digital effects and fader functions cannot be used if you have selected the Easy Recording program (p. 29).

? The PLAY ► button doesn't work.

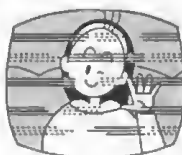
- The program selector isn't set to **PLAY** (p. 14).
- You haven't loaded a cassette (p. 12).
- The tape has reached the end (p. 12).

? There's a bright stripe on the screen.



- When you are recording in dark places, a bright light in the scene may cause a vertical bar, called smear, to appear on the screen.

? The playback picture is rough.



- If your recordings do not play back smoothly, clean the video heads (p. 64).

? There's no picture on the TV screen, even though the tape is moving.

- The video heads need cleaning (p. 64).
- The TV/VIDEO selector on the TV isn't set to VIDEO (p. 17).
- If the camera is connected using the RF unit, you haven't selected the video channel (p. 19).

? There are air bubbles inside the lens.

- This is unlikely, but may happen if you use the camera in places where the air pressure is very low, in an airplane for example. The bubbles will disappear a week or so after you return the camera to normal atmospheric pressure.

? Malfunction

- External interference may cause the camera's microprocessor to malfunction temporarily. If random letters appear in the viewfinder or if normal operation is interrupted, remove and then replace the power source (and if necessary, the backup battery).

? The Editing function does not work, or

? I tried to set my camera to control my VCR remotely, but I cannot find the right setting. (p. 47)

- Move the cables and the strap, and everything else out of the way of the infra-red remote control signals to VCR. (p. 46)
- Move the camera so it is in the right position to send signals to the VCR's sensor. (p. 46)

? The PREVIEW function of the Auto Editing Function looks very strange.

- To help with editing, playback in the preview function starts a little before each 'cut-in' point. It pauses for 2 seconds at the cut-in point itself. It also pauses again at the 'cut-out' point. (p. 50)

? The scenes in the final tape recorded to the VCR start and stop in odd places.

- Check that the "cut-in" and "cut-out" points are correctly set. (p. 51)

? The Auto Editing Function does not work at all.

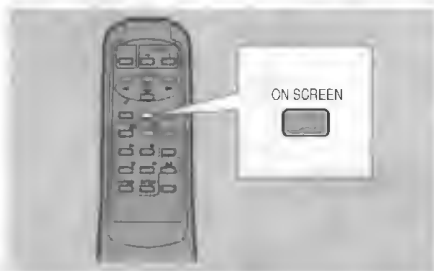
- Check that you have set it correctly to remotely control your VCR. (p. 46, 47)

About the LCD Viewfinder (UC-X45Hi)

Liquid Crystal Viewfinders use extremely high-precision technology, but there will be pixels which do not light up or which are continuously lit. This is not an error and will not affect the recording.

Viewfinder Displays

E




To display the date and time on a connected TV, press the DATE button. Press the TITLE button to see the title. These displays are recorded just as they appear on the screen.


Press the wireless controller's ON SCREEN button to see the other viewfinder displays on the TV screen. (The displays appear white on-screen.) They will not be added to any recordings you make with the camera.


 indicates a flashing display.


 PAUSE Record pause mode (p. 6)

 REC Recording (p. 6)


 The backup battery is not properly installed, or needs replacing (p. 11).


 Shows how much battery power remains (p. 10).


 The battery pack is exhausted (p. 10).


 No cassette is loaded, or it is set for erasure prevention (p. 12).

 ...finally, it tells you when you have completely run out of tape.

 Hi8 recording or playback (p. 16)

 The camera is ejecting the tape (p. 12).

 The safety mechanism is activated. Unload the cassette and turn the camera off. Turn it on again and reload the cassette.


 Playback is stopped (p. 14).

 Normal playback (p. 14)

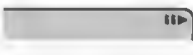
 Fast forward (p. 14)


 Rewind (p. 14)

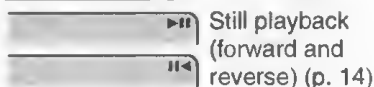
 Tape return (forward and reverse) (p. 16)

 Fast forward playback (p. 14)

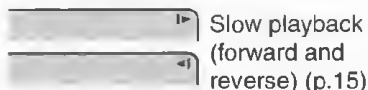
 Rewind playback (p. 15)

 Frame advance playback (p. 15)

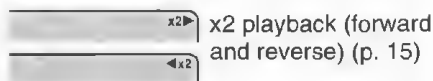
 Frame reverse playback (p. 15)



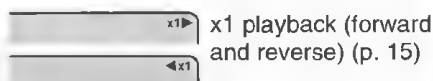
Still playback
(forward and
reverse) (p. 14)



Slow playback
(forward and
reverse) (p. 15)



x2 playback (forward
and reverse) (p. 15)

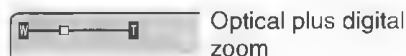


x1 playback (forward
and reverse) (p. 15)

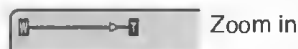
Zoom display (p. 20):



Optical zoom



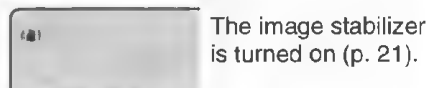
Optical plus digital
zoom



Zoom in



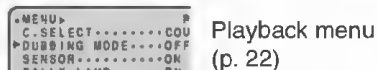
Zoom out



The image stabilizer
is turned on (p. 21).



Camera menu
(p. 22)



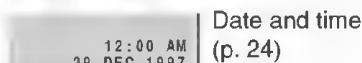
Playback menu
(p. 22)



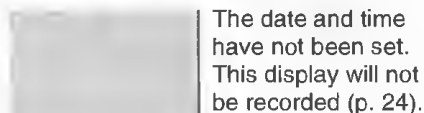
Edit menu
(p. 22)



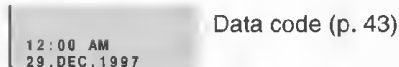
The remote sensor
is turned off (p. 23).



Date and time
(p. 24)



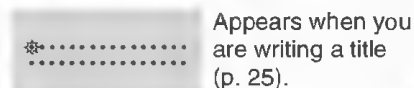
The date and time
have not been set.
This display will not
be recorded (p. 24).



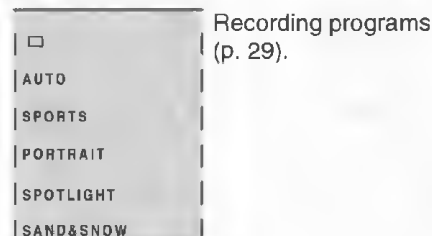
Data code (p. 43)



Title (p. 25)



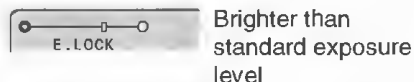
Appears when you
are writing a title
(p. 25).



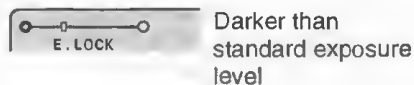
Recording programs
(p. 29).



Manual exposure
display (p. 35):
Exposure locked



Brighter than
standard exposure
level



Darker than
standard exposure
level

AF OFF

Manual focus is selected (p. 33).

WB

White balance is set manually (p. 36).

1000

Manually selected shutter speed (1/1000th of a second in this example) (p. 37)

CLOSE-UP

ART

16:9

MOSAIC

BLK&WHT

SEPIA

NEGATIVE M

Digital effects: the display flashes when the effect is being selected, and appears steadily when it is activated (p. 38).

EFFECT OFF

No digital effect is selected (p. 39).

WIPE

WIPE

WIPE

FADE-T

Digital fader functions. The display flashes when the function is being selected and appears steadily when it is activated (p. 40).

FADER OFF

No fader function is selected (p. 41).

WS OFF

The wind screen is turned off (p. 42).



FlexiZone Control frame (p. 32, 34)

E. LOCK

FlexiZone AE/Exposure lock (p. 34)



Condensation warning (p. 65)

Tape counter

1 : 23 : 45

The tape counter indicates the approximate running time of the tape — 1 hour, 23 minutes and 45 seconds in this example. The tape counter is reset when a cassette is loaded, or when you press the COUNTER RESET button (p. 16).

RC Time Code

1 : 23 : 45 : 15

This records counter information, including hour, minute, second, and frame number on a special data code area on the tape itself. Is reset automatically when a new tape is loaded.

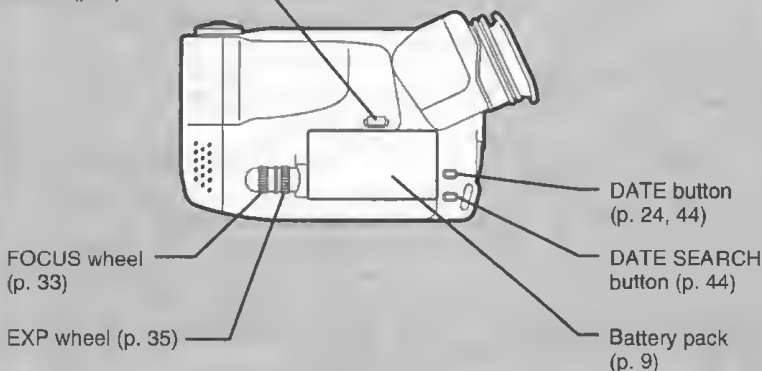
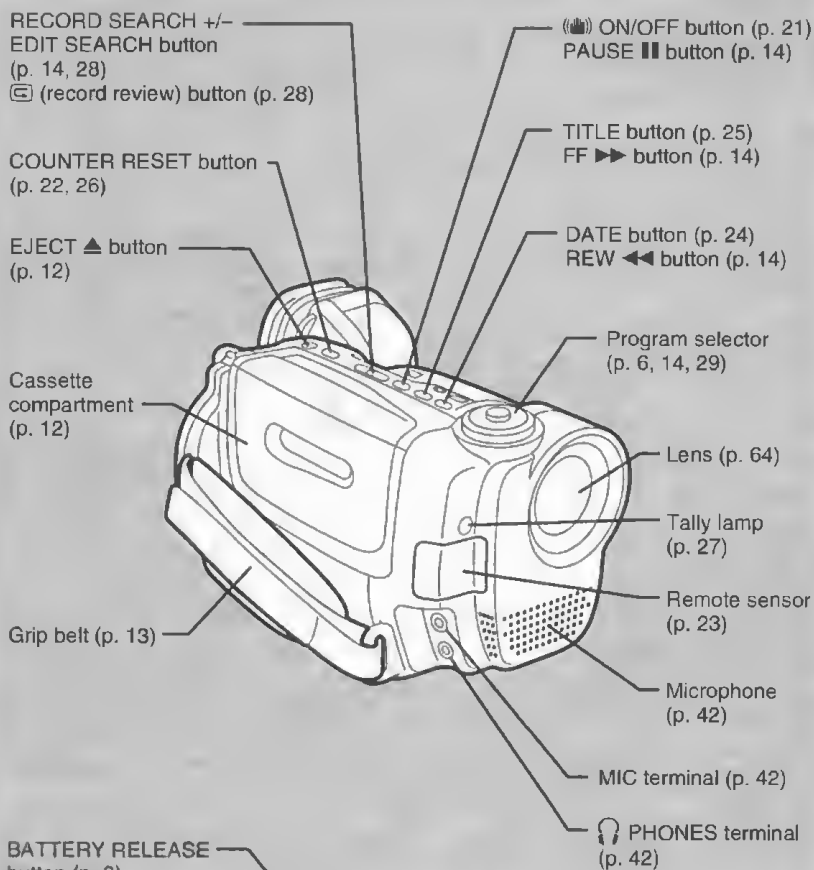
Recording reminder

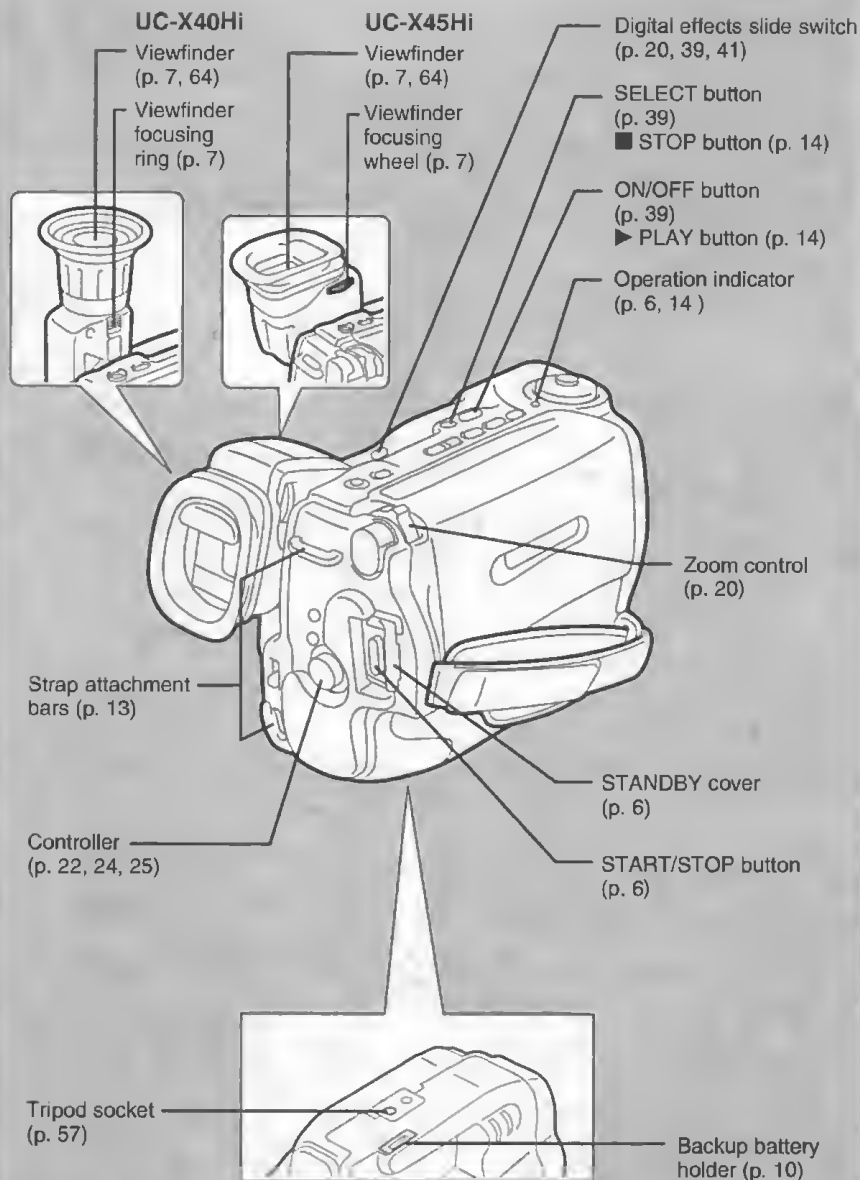
0SEC

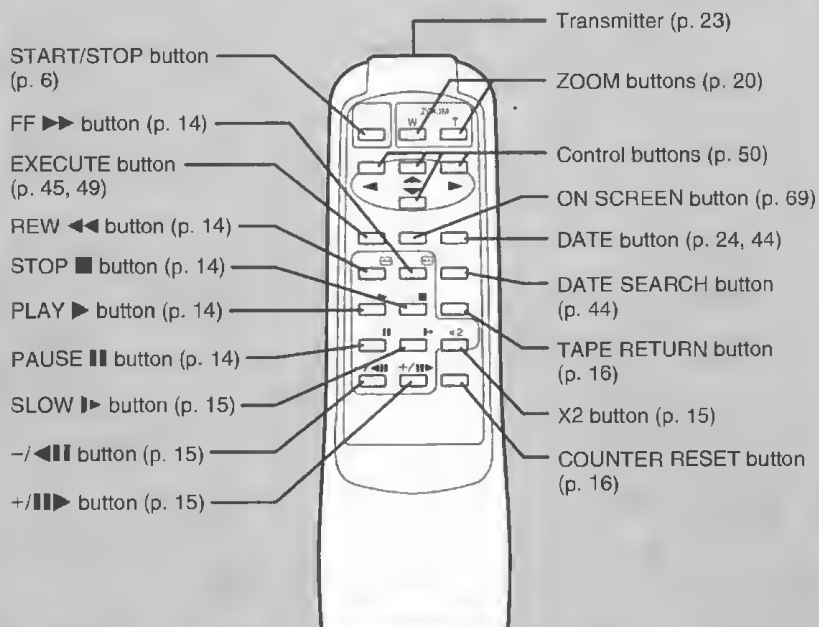
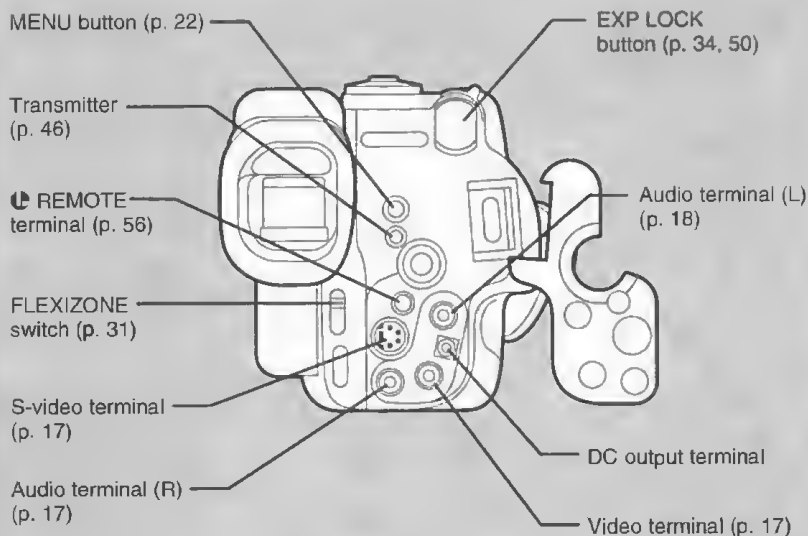


10SEC

When you start recording, the camera counts from 0SEC to 10SEC. Shots which are shorter than 10 seconds may be difficult to edit later. On the other hand, if you are not planning to edit the recording, remember that a shot which does not contain action should generally last no longer than 10 seconds.







Specifications

E

UC-X40Hi/UC-X45Hi

Power supply (rated): 7.2 V DC

Power consumption:

UC-X40Hi: 5.8 W

UC-X45Hi: 6.2 W

Television system: CCIR standard (625 lines, 50 fields) PAL colour signal

Video recording system: 2 rotary heads, helical scanning system; luminance signal: FM azimuth recording; chrominance signal: converted subcarrier phase shift recording (8mm video standard)

Audio recording system: Frequency multiplexing with the video signal (2 channels)

Image sensor: 1/4-inch CCD (charge-coupled device), 470,000 pixels (440,000 effective pixels)

Tape format: 8mm videocassette, metal evaporated/metal particle

Tape speed: 20.05 mm/s

Fast forward/rewind time: Approx. 6 minutes (with a P5-90 cassette)

Lens: F: 1.6–3.7, 22x power zoom, f: 3.9–85.8 mm

Focusing system: TTL autofocus, manual focusing possible

Minimum focusing distance: Wide-angle end: 1 cm; telephoto end: 80 cm; intermediate zoom position: 1 m

Minimum illumination: 3 lx

Recommended illumination: More than 100 lx

Filter diameter: 46 mm

Viewfinder:

UC-X40Hi: 1/2-inch monochrome CRT

UC-X45Hi: 0.7-inch colour LCD; approx. 180,000 pixels

Microphone: Stereo electret condenser microphone

Input level: Microphone terminal: –67 dBV/600 ohms unbalanced

Input impedance: Microphone terminal: more than 5 kohms

Output level: Video terminal: 1 Vp-p/75 ohms, unbalanced;

S-video terminal: 1 Vp-p (Y signal), 0.3 Vp-p (C signal);

audio terminals: –10 dBV, less than 3 kohms, unbalanced

Operating temperature: 0°–40°C

Dimensions:

UC-X40Hi: 105 x 112 x 206 mm

UC-X45Hi: 106 x 109 x 184 mm

Weight:

UC-X40Hi: 805g

UC-X45Hi: 815g

BP-911 Battery Pack

Battery type: Rechargeable lithium ion battery

Rated voltage: 7.2 V DC

Operating temperature: 0°–40°C

Battery capacity: 1,150 mAh

Dimensions: 38.2 x 20.5 x 70.5 mm

Weight: 96 g

Weight and dimensions are approximate.

Errors and omissions excepted.
Subject to change without notice.

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